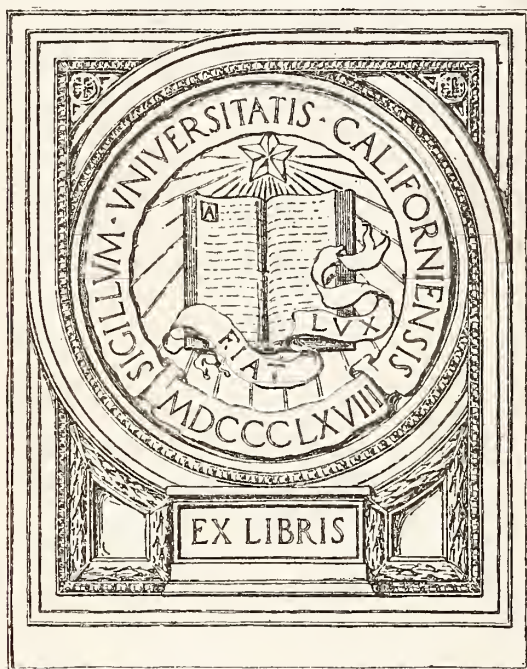


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Colorado Medicine

The Journal of the Colorado and Wyoming
State Medical Societies

EDITORS:

C. F. KEMPER, M.D.
EARL WHEDON, M.D.

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1926

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Colorado Medicine

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EDITORIAL NOTES AND COMMENT

EDITOR RESIGNS

Just two years ago Dr. C. S. Bluemel stepped into the arena of medical editors of North America (apologies to toreadores). While denied the ecclesiastical viewpoint, which he evidently so much regrets, he lacked nothing in antecedents and boyhood environment to fit him for his task. Rugby, his birthplace, finely situated on a tableland rising from the south bank of the Avon gave the cue to his friends to expect a competitor in literary fame rivaling that of the author of Tom Brown or even the Stratford bard himself.

Be that as it may, Dr. Bluemel has set a pace as editor that no "connoisseur of commas" can hope soon to equal. While he thrived on the oversight of a thousand thankless details, his fertile pen never failed to convey wise medical philosophy and accurate scientific facts. In this case we say exeunt not exit, because a man of many parts resigns as editor.

THE WYOMING BOW

A timid child appears for the first time upon the platform of life to make his maiden speech. Were it not for the sympathy of the fond members of the family, this child would probably duck his head and, even before the first line had been stumbled through, would be off the stage in a minute.

But we believe the united efforts of the Colorado and Wyoming Societies can and

will be of benefit not only to ourselves but also to the advancement of health and happiness to the people of these sparsely settled, yet wonderful states.

It is with a deep sense of gratitude to the Colorado State Medical Society that we accept the duty of the joint publication of the "Colorado Medicine."

As officers and members of the Wyoming State Medical Society we pledge our united efforts to maintain the high ethical standards already set and constantly maintained by this journal. To make more useful, more uplifting and to smooth the pathway of the average physician within the influence of this journal is the true object of our joint effort.

Always open to suggestions which may in any way help in carrying out our ideals and not unmindful of any criticism honestly given, we crave your cooperation and support.

E. W.

THE SCOPE OF THE COLORADO GENERAL HOSPITAL

Such institutions as the Colorado General Hospital occupy a critical position in the medical field. They contain within themselves a power either to jeopardize the present system of medical practice, or to be a great boon to the profession. There is a conceivable form of state medicine which would be obnoxious to physicians in taking away their independence as professional men

and putting them in the position of hired servants, thus upsetting the intimate and confidential relation of patient and physician which is so essential to diagnosis and treatment. On the other hand, state care of the indigent sick would seem to be a desideratum; but it is only the indigent or semi-indigent class that should legitimately become a state charge.

The law establishing and maintaining our own state general hospital seems to convey the latter intent, provision being made for graded nominal payments from those unable to employ medical services privately but able to pay a little toward hospital maintenance. Hospital service per se is furnished by the state, but the medical and surgical staffs are manned by physicians of Colorado who donate their services. Thus, patients treated medically or surgically receive free the ministrations of well qualified doctors.

The question now arises with citizens as to whether they may indiscriminately make use of a public facility for which they are taxed. If it is explained to them that this is in the nature of an eleemosynary institution, run with donated medical service for the benefit of the indigent sick of the state at large, much as is the Denver General Hospital or the county farm for the county poor, it should suffice with people of means and normal pride. There may be, however, a large number who feel that their circumstances entitle them to the service of the hospital, yet who are in reality able to pay the moderate fees which doctors gladly extend to poor people, and which they should rightly pay. It is on the handling of this class that the success of the hospital in carrying out the intent of the law and in retaining the services of capable physicians will depend—on the proper selection of eligible patients; and the burden of this selection will rest upon an efficient social investigating personnel, having definite rules for their guidance and a zealous activity in true investigation.

Social service for the unfit and the incapable is one thing; the abuse of social service and imposition upon good-natured free help by the well-to-do or near well-to-do is quite

another. Physicians, having proper respect for their professional calling and its just perquisites, have a right to demand that patients, applying for treatment at institutions which care for the sick through donated medical service, shall be rigidly sorted with regard to their inability to meet their sick problems through private means.

The Colorado General Hospital, if such be its policy, can be held within the bounds of legitimate state medicine and relieve the private practitioner of much charitable work which ordinarily goes with the ethical conduct of his practice; but by a loose policy or undue leniency or careless investigation of applicants it can easily become a menace to private practice, and work great injustice also upon a self-sacrificing free staff; becoming in effect an agent of state medicine in its iniquitous form, but without compensating its servitors.

It is pointed out again, then, that one of the essentials of the hospital is a competent and effective social investigating department, with its feet, so to speak, on the ground, backed up by a policy defined along the lines above mentioned; and, since the curbing of the socialistic state medicine trend lies in such a policy, it is hoped and expected that the hospital administration will keep itself aligned with the medical judgment of today by adhering to it. We have every reason to believe that it is endeavoring to do so.

F. B. S.

WHAT IS CANCER?

Clinically, it is a disease that starts with a local lesion, which extends with increasing rapidity, gives rise to similar lesions in other parts of the body, impairs all the vital functions, causing cachexia, and ends in death. These are the familiar phenomena of cancer. Certain theories of its nature assume preceding conditions, as a non-malignant earlier stage of the local lesion; or a general tendency to cancer, perhaps hereditary, that causes its first local development, or general nutritive states that change the nature of local lesions, or favor or oppose the development of cancerous tissue. So

long as our knowledge of malignant disease is incomplete, such suppositions naturally arise to bridge the gaps left by clinical observation, experiment, and histologic or chemie study of cancer tissues.

What determines the development of cancer? Is it an outside influence? Is it a peculiar form of irritation, like the x-ray, or tar distillates? Or is it a germ, causing a specific pathologic process—a living virus? Or is it some obscure defect; perhaps hereditary, perhaps due to congenital fault or development, or to unfavorable general conditions, of diet, habitual function, or abnormal stimulation?

Within the last century an enormous number of diseases have been traced to invading organisms. It is not strange that within the last thirty years a great deal of microscopic observation and laboratory experiment have been devoted to the discovery of such an organism, or organisms, that could be demonstrated to cause cancer. Various appearances have been discovered with the microscope, that have been supposed to be those of the pathogenic organisms sought. But in no case has this supposition been confirmed by subsequent observers, or has the evidence of their etiology relation to cancer been sufficient to gain general acceptance of the supposed discovery.

In the *Lancet* for July 18, 1925, Dr. W. E. Gye, who has held a research fellowship of the Medical Research Council, published the results of some very ingenious and interesting investigations regarding, what is called carcinoma in rats and mice, and so-called sarcoma of chickens. These diseases can be transmitted by transfer of living cancer cells from one animal to another. Gye found that they can also be transmitted by the juice of the cancer, filtered through a Chamberland filter that removes all visible bacteria, by what he regards as a "filtrable virus." This virus could be concentrated in the fluid by centrifuging, and, therefore, he assumed it must consist essentially of minute ultramicroscopic organisms, cancer germs. This filtrable virus from rat carcinoma can be used to produce chicken sar-

coma. In one case such a virus from human adeno-carcinoma was used in producing chicken sarcoma.

But the "filtrable virus" cannot produce cancer alone. It must have the help of another substance. This second substance cannot be concentrated or removed from the fluid by the centrifuge. Therefore, it is supposed to be some chemie substance, dissolved in the fluid.

Because, to be effective, it must be secured from the same species of animal as the one in which it is to be injected; and because it must be produced by the same kind of growth as it is used to produce, Gye calls this the "specific factor." Thus the "filtrable virus" used to produce chicken sarcoma may be obtained from rat carcinoma; but the "specific factor" used, must be obtained from the chicken and must be from the cells of the particular kind of growth called chicken sarcoma. In the experiment on human adeno-carcinoma, which was used in the production of chicken carcinoma, the human tumor furnished the "filtrable virus," but the "specific factor" was obtained from "chicken carcinoma."

In the same number of the *Lancet* with Dr. Gye's paper appeared one by Mr. J. E. Barnard, reporting the photographing of the "filtrable virus" of cancer. Mr. Barnard has worked for years on the problems of photographing with ultra-violet radiations. Such radiations will give a distinct picture of particles so small that they cannot be seen, and will not give a picture, with visible rays of the spectrum, by which the eye sees objects. An illustration and brief explanation of the apparatus with which Barnard does this is published in the *Literary Digest* for November 14th, 1925. Mr. Barnard had worked at photographing what is believed to be the filtrable virus of contagious pleuro-pneumonia of cattle, supposed to be the largest of filtrable viruses. That he photographed something from the "filtrable virus" which Dr. Gye furnished him, seems certain. But that it was a germ that could live, multiply and cause cancer is not so certain.

Even if Mr. Barnard photographed a living germ in what Dr. Gye calls the "filterable virus" of cancer, the role of such germ in causing the cancer of rats or chickens, seems much more like that of an irritant like mechanical chafing, or tar distillates or exposure to x-rays, than it does to the role of such organisms as the tubercle bacillus, or the treponema pallida, or the lepra bacillus. The more peculiarly specific cause of cancer seems rather to be the chemic substance, that Gye has called the "specific factor"—what seems to be a fluid elaborated by cells of the local lesion that has become malignant; and which is not known to be produced in any other way than by an abnormal action of such diseased cells. This specific factor seems capable of preparing the normal tissues for the implantation of such cells in other parts of the body; either of the animal that has produced the local lesion; or in the bodies of other healthy animals of the same species, as that of the animal in which the original lesion was situated.

As we see it now, the important contribution Dr. Gye has made to the answer of the question, what is cancer, is the evidence he has brought out of the existence and general character of what he calls the "specific factor" of cancer. It is something developed in body cells that have fallen to a lower and more primitive plane of living than the normal body cells; and have, perhaps, developed a toxin to which these cancer cells are more or less immune; but which acts so unfavorably on cells of other tissues, that the cancer cells are able to invade adjoining cell territory and establish cancer colonies in other organs of the body.

This "specific factor" of cancer explains: Why cancer cells transplanted experimentally to another part of the body originate a new cancer lesion; transplanted to another animal of the same species they act as a living virus, and in this sense make cancer contagious. The power to produce such a substance is acquired only by a race of cells, that has long developed under the abnormal conditions of the primary local lesion. But the power to produce this substance, having

become a fixed character in this race of cells, is carried by each cell into its new environment; either in the body of the individual primarily infected, or in the body of another individual sufficiently similar to furnish a favorable location.

The development of cells capable of furnishing this "specific factor" might be dependent on hereditary characteristics of a family or species, accounting for the wonderful records of cancer hereditary in mice published by Dr. Maud Slye, and the striking records of some human families. It would account for the observed influence of many irritants in causing cancer; from the smoke products affecting chimney sweeps, or old smokers, to the effect of exposure to x-rays. It would account for the increasing liability to cancer with increasing age. It would account for the apparent origin of cancer in certain cases; from a wide variety of local lesions, which usually remain benign. It would account for the forms of cancer that seem to arise from congenital tendencies.

It harmonizes with the facts of metastasis, in which cancer cells spring from the race of cancer cells, and not from a sudden malignant tendency developed in cells of the part previously normal. It opens an explanation of the apparent influence of worry, poor nutrition and over excitement in predisposing to cancer; or favoring its development and offers the hope that general conditions may be so controlled as to retard, oppose, or even overcome the tendency to produce the "specific factor". In a word, it explains, better than any other hypothesis of malignancy yet put forward, the cure or prevention of cancer by early excision or destruction of the local lesion; without at all excluding the possibility of finding a medical treatment that will favorably influence, or may even control the course of this increasingly prevalent, and rightly dreaded cause of suffering and death.

E. J.

Wise old owl that sat on an oak
The more he saw, the less he spoke;
The less he spoke the more he heard,
Let us all be like that wise old bird.

SOME OF THE CLINICAL MANIFESTATIONS OF TUMORS OF THE SPINAL CORD*

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In considering compression of the spinal cord, we do not include the condition due to such violent disturbances as fracture of the spine or gunshot injury, but rather that due to the gradually increasing loss of sensation and motility below a given level, which results from a progressive compression of the cord or cauda. This distinction is important, because in the former, surgical interference offers little, whereas in the latter, such interference is usually indicated at the earliest possible moment in order to prevent possible irreparable injury.

Any spark of interest in neurology that a medical student might harbor, is usually quickly and completely extinguished by throwing to him the bare and disjointed bones of neuro-anatomy and neurophysiology on which to wear down his eye-teeth. The result is unfortunate, since relatively few facts suffice for ordinary clinical purposes, and since the application of these in general practice would prove to be of greater value than is generally appreciated.

A truly remarkable state of knowledge of the anatomy and physiology of the spinal cord was current as early as 167 A. D. Galen knew that the cord could be cut lengthwise without producing paralysis; that section of one side of the cord would result in paralysis below the point on the same side of the body; that cutting the cord at progressively higher levels would cause correspondingly higher paralysis, and that section between the third and fourth cervical segments would abolish respiration and cause death. He supposed that the brain had something to do with intellect, but Galen was a cautious as well as a wise physician, for he remarked, parenthetically, that an ass has brains.

It was not until 1811 that the modest and profound investigator, Sir Charles

Bell, found he could cut across the posterior roots without convulsing the muscles of the back, but on touching the anterior roots with the point of a knife, the muscles of the back were immediately convulsed, thus demonstrating for the first time that the anterior roots were motor in function.

Since the spinal nerves carry both sensory and motor impulses, a lesion of these will manifest itself by a disturbance of all forms of sensation and motility. Involvement of the posterior root alone will result in a disturbance of all forms of sensation; involvement of the anterior root alone will produce only a motor disturbance. After entry of the posterior root into the cord, however, the various forms of sensation pursue different paths, so that a lesion within the cord might not affect all forms of sensation.

Fibers which carry sensations of pain and temperature are closely associated and may be regarded as taking the same course. They cross almost immediately to the opposite side of the cord in the anterior commissure, and ascend to the brain in the lateral spinothalamic tract. A lesion of this tract would result in loss of pain and temperature sensibilities below the given level on the opposite side. Postural and vibratory sensations ascend the cord in the posterior column on the same side and do not decussate until they have reached the brain stem.

Tactile stimuli take two pathways: one travels up the posterior column on the same side of the cord, but crosses to the opposite side after reaching the brain stem; the other crosses almost immediately and ascends in the anterior spinothalamic tract of the opposite side. Therefore, a lesion of either half of the cord alone will not abolish tactile sensation completely.

We do not know even yet just where or in what manner motor impulses arise in the brain. Let us assume, for the time being,

*Read before the annual meeting of the Wyoming State Medical Society, Buffalo, Wyoming, June 22 and 23, 1925.

that they leave the pyramidal cells of the pre-Rolandic area, whence they pass downward in the pyramidal tract; most of the tract crosses to the opposite side about 1 cm. below the pons, and takes its place in the lateral column of the cord. The pyramidal decussation was not known as such until 1710, when the great French physiologist, Francois Pourfour du Petit, described it and established for all time the doctrine of contralateral innervation. A lesion of the pyramidal tract results in the form of paralysis seen in ordinary hemiplegia. The muscles are not wasted; they are hyper-tonic; the tendon reflexes are more active than normal, and the plantar response by the Babinski method is usually extensor, that is, on stroking the sole of the foot, the great toe turns up.

The motor impulses leave the pyramidal tract and are relayed to the cells of the anterior horn, or lower motor neurone, on the same side, the axon of which leaves the cord through the anterior root. A lesion of the lower motor neurone results in a form of paralysis that differs in many respects from that caused by involvement of the upper motor neurone; it resembles that seen with poliomyelitis. The muscle fibers supplied by the corresponding neurones are weak and atrophied and the tendon reflexes are reduced to a point commensurate with the amount of muscle substance remaining.

Since in compression of the spinal cord one side is usually affected a little before the other, the sign manual of this type of disturbance is an approach to the Brown-Séquard syndrome. The cardinal features of this syndrome are: (1) homolateral paralysis below the given level, due to involvement of the pyramidal tract; (2) impairment of pain and temperature sensibility of the opposite side below the level in question, and (3) preservation of tactile sensibility on both sides. In order to determine more accurately the level of a lesion, close attention must be paid to the distribution of the sensory, motor, and reflex disturbances.

The segmental distribution of cutaneous sensation is very orderly. If we picture a man as walking on all fours, and map out

on him the various fields of sensation supplied by the different segments of the cord, he would appear very much like a zebra with the stripes succeeding each other from in front backward, running in long bands down the arms, in circles around the trunk, in bands down the legs, and ending in concentric rings around the anus. Actually these segments overlap each other like shingles on a house, so that two or three adjacent roots would have to be destroyed before an area of anesthesia could be demonstrated.

A point of great importance is the fact that in man, after the third month of intra-uterine life, the cord grows more slowly than the vertebral column. At birth the lower end of the cord lies opposite the third lumbar vertebral body; by the time maturity is reached, it has moved upward to the lower end of the first lumbar vertebra. The root of a given segment, however, runs downward in the canal and emerges from the spine at the corresponding vertebra.

A simple rule, known as Kocher's rule, may be applied when the anesthesia due to a cord lesion is sufficiently intense to permit establishing a level across the back. The spine is divided into equal thirds; if the level of anesthesia runs through the upper third, and we count upward three spinous processes, we come to the site of the cord lesion; if the line runs through the middle third, we count up five processes, and if through the lower third, seven processes.

The signal forerunner of spinal cord compression is root pain. Root pains have certain distinctive characteristics (Table 1). These may be compared with those of sciatica, with which they are often confused when they affect the lower extremities. The following points in a case are illustrative (Fig. 1):*

Over the right half of the body there was loss of pain and temperature sensation, as indicated by the hatching, but tactile sensi-

*The figures on the charts indicate a disturbance on the basis of 0 to 4, 0 meaning normal, and + and — various degrees of increase and decrease, respectively. Roman numerals indicate temperature disturbance, Arabic numerals touch, and circled numerals pain.

A485751 Endothelioma 3x2x1cm. left first cervical segment

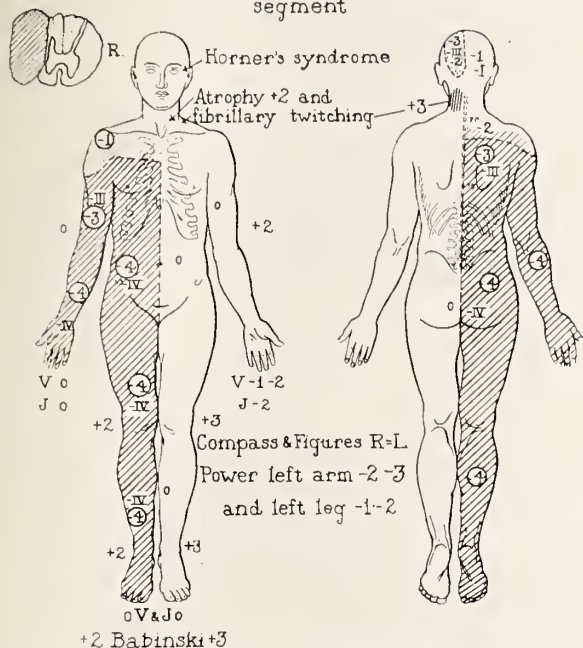


Fig. 1. Endothelioma opposite the first and second cervical segments.

bility was normal throughout; the left arm and leg were paralyzed and spastic with increased tendon and positive Hoffmann and Babinski reflexes. Thus, a well developed Brown-Séquard syndrome, due to a lesion on the left side, is demonstrated. However, the upper sensory level, corresponding to about the fourth cervical segment, was not sufficiently sharp to permit accurate localization. The drooping eyelid and small pupil on the left, known as Horner's syndrome, were due to a sympathetic paralysis, and indicated a lesion not lower than the first or second dorsal segments. The left sternomastoid, trapezius, and nuchal muscles were weak, atrophied, and fibrillating, which indicated involvement of a lower motor neurone. Since these muscles are all innervated by cells of the first four cervical segments on the same side, a sharper localization became possible. Over the left occiput was a patch where pain, temperature, and tactile sensation were lost. Clearly all of the first and second cervical posterior root fibers were damaged. These findings localized the lesion very sharply on the left side, in the region of the first and second cervical segments. The projectile vomiting was probably caused by encroachment on the foramen magnum. Since the history indi-

cated progressive involvement, this encroachment was most likely by a tumor. Removal of an endothelioma was followed by marked improvement.

Yellow spinal fluid may be found in cases of jaundice, from the admixture of old blood with spinal fluid, in cases of brain tumor which encroach on the ventricle, and in cases of block in the spinal canal, which frequently occurs if there are tumors, when it is known as Froin's loculation syndrome. The yellow fluid is usually found below the block, but may also tint the fluid above. Block of the canal may also be evidenced by failure of the spinal fluid to rise in the manometer tube, attached to the lumbar puncture needle, on light compression of the jugular veins. This valuable sign was first described by Queckenstedt.

A preparation known as lipiodol, which is opaque to the roentgen rays, may be introduced into the spinal canal through a cistern puncture, and since it is heavier than spinal fluid, will sink to the point of obstruction, where it may be located by means of the roentgen ray.

Tumors of the upper and lower ends of the cord may present certain peculiar features. The crossing of the pyramidal tracts at the anterior aspect of the cord in an exposed situation may result in quadriplegia unaccompanied by any sensory disturbance. The sensory disturbance associated with high cervical tumors may be limited to the lower extremities; it may fluctuate from time to time and from place to place, probably because the relatively large canal here permits shifting of the pressure. Involvement of the descending root of the fifth nerve may result in pain referred to the face, and in anesthesia for pain and temperature over certain portions of the face, since those fibers are probably concerned with the conduction of these forms of sensibility. The proximity of the foramen magnum may bring about signs of brain tumor, such as projectile vomiting and choked discs.

At the lower end of the cord, other difficulties may be encountered. The relative shortening of the cord incident to growth, and the emergence of the roots through the

TABLE 1
Characteristic features of root pains,
typical when there is pressure from spinal cord tumors, compared with
those of sciatica.*

	Root pain	Common to both	Sciatica
Situation	Anywhere. Referred to peripheral distribution of neurone. At first unilateral, later bilateral (girdle) and symmetric.	May be same	Buttock, posterior aspect of thigh, calf. Rarely bilateral.
Character	No tenderness	Usually dull ache	Tenderness at nodal points.
Onset	Gradual		Often acute, especially after strain, exposure or "cold."
Course	Continuous or recurrent. Spreading to contiguous territory, especially opposite side, and growing in intensity.	Reappearing at intervals. Worse on coughing, sneezing, straining.	First attack often the worst. Field of activity unchanged.
Flexion of head	Aggravates pain		No change.
Kernig and Lasèque		Present, especially if tumor is low.	
Spine	Often fixed	Listing common	
Temperamental idiosyncrasies	Patient without pain on retiring; awakened later (at 3:00 a. m.) by pain; relieved by kneeling or exercise. Returns to bed toward morning. Often prefers to sleep sitting in chair.		Often kept awake by pain on retiring. Pain wears off gradually, allowing patient to sleep. Worse on exercise, and on sitting in chair.
Influence of weather and temperature	None		Often striking. Cold aggravates; heat relieves.
Neurologic findings	Sensory, motor, reflex and spinal fluid.		None. Tendon achillis reflex often absent in severe cases.

*Behavior of pain from lower cord and caudal neoplasms exemplary as compared to sciatica, with which confusion is common.

anterior foramina of the sacrum often make it extremely difficult to determine whether there is a tumor of the cord, of the cauda, or of the pelvis. The objective findings may be the same. Pelvic tumors are sometimes revealed by roentgenographic examination, but are demonstrated with greater certainty by rectal examination, a procedure which should never be neglected, since exploration

of the spine for a tumor hidden in the pelvis is obviously a serious blunder.

The roentgen ray does not often help in localizing a spinal cord tumor. Occasionally dumb-bell shaped tumors, which lie partly within and partly without the canal, a narrow isthmus connecting the two masses, are shown by the roentgenogram. One of the strange manifestations of these tumors is a

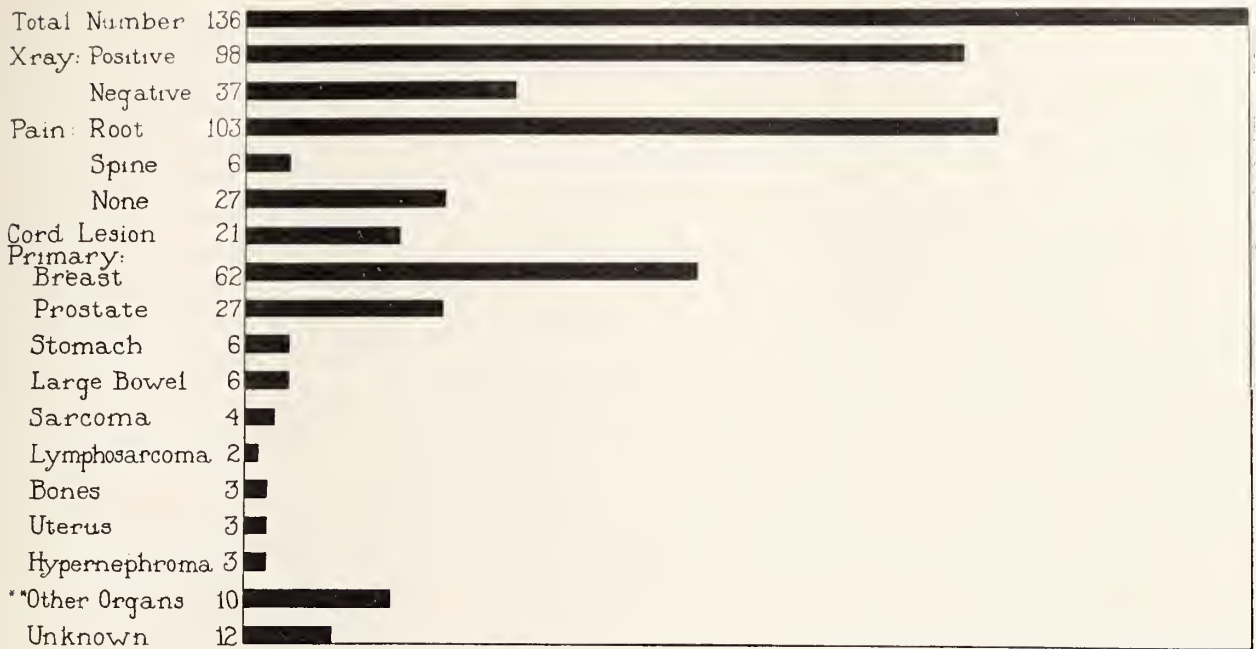


Fig. 2. Metastasis of malignant tumors to the spine. The primary growth may have been removed eight or more years before, as in the breast. Carcinoma of the prostate metastasizes most frequently to the lower part of spine and pelvis; carcinoma of the breast and gastro-intestinal tract seems to involve any level of the spine indifferently. The spinal cord involvement may be complete within two days; often the paralysis is progressive for two or three months; ten or more months may be required before the paralysis is complete.

**Includes palate, nasopharynx, skin, parotid (mixed tumor), thyroid, melanocarcinoma of skin, sarcoma of chest wall (three cases), myeloma, lungs (primary), testis, labia.

sudden and transitory collapse of the lower extremities, which may cause the patient to drop suddenly to the ground.

It is usually difficult to determine before operation whether a tumor is intramedullary or extramedullary. A valuable differential point, first noted by Kerpola, is an area of relatively intact sensation in the perianal region. This is found more often in cases of extramedullary tumor than in cases of intramedullary tumor.

Metastasis of malignant tumors to the central nervous system is a derelict encountered in our diagnostic lanes (Fig. 2). The tumors may arise from some recess as hidden as the nasopharynx. Fortunately, the roentgenogram usually gives a warning. The symptoms may be the same as those of any benign cord tumor, except that the progress of malignant growth is usually more rapid. Carcinomas of the breast and prostate head the list. It must not be forgotten that a primary carcinoma of the breast may have been removed many years before metastasis gives evidence of its presence. Since carcinoma of the prostate may not produce local symptoms, a rectal exam-

ination should be made as a routine.

Hypertrophic pachymeningitis is among the various diseases encountered that may be difficult to distinguish from tumor. In this disease, the dura becomes thickened, usually in the cervical region; by pinching off the nerve roots, it causes pain, atrophy, and sensory disturbances of the arms, and by compressing the cord, it causes impairment of function below.

Meningomyelitis may remain localized. There is often a history of antecedent trauma or infection. As a rule, the examination does not disclose a Brown-Séquard syndrome; the upper level of anesthesia is usually indistinct, and all qualities of sensation are equally affected, possibly because the inflammation penetrates the cord.

The spine itself may be the seat of the original disturbance. Compression of the cord from Pott's disease is not uncommon. A somewhat infrequent cause of compression is a chronic hypertrophic osteo-arthritis of the spine, which the roentgenogram often fails to show. Parker and Adson have reported a series of these interesting cases. Spondylolisthesis, or a slipping forward,

usually of the fifth lumbar vertebra on the sacrum, often results in injury to the cauda.² Occasionally a case of Paget's⁷ disease is encountered in which the cord shows evidence of compression.

Spina bifida is sometimes confusing. It may even be associated with a superimposed tumor. The difficulty lies in the fact that the symptoms of spina bifida may be late in appearing, presumably on account of traction on the cord and nerve roots which are anchored below. Spindle-legs, deformity of the feet, an area of sacral hypertrichosis, and a sacral dimple, are signs of warning.

In cases of subacute combined degeneration of the cord, the lesion, while progressive, is usually painless and diffuse. A toxic process is responsible. Often multiple neuritis is associated.

The diagnosis of tabes is sometimes made when there are tumors of the cord or cauda, probably because the patellar reflexes may be absent, but a complete examination usually indicates the true nature of the disease, for syphilis of the nervous system produces scattered signs.

It may be difficult to distinguish syringomyelia from an intramedullary tumor. The characteristic waistcoat type of sensory disturbance, showing a predilection for the pain and temperature fibers, since these lie near the central canal; the local atrophy caused by extension of the process here and there into the anterior horns, and the tell-tale scoliosis, usually aid in establishing the correct diagnosis. If a cord tumor is associated with a syringomyelia, the diagnostic difficulties may be insurmountable.

While multiple sclerosis may produce a transverse cord lesion, the youth of the patient, the absence of pain, and the presence of cerebral signs, such as tremor, scanning speech, nystagmus, optic atrophy, ocular palsies, and the characteristic emotional lability usually put us on our guard.

Conclusions

1. If a patient presents a stubborn pain for which there is no obvious explanation, he may be suffering from a root pain.

2. If a patient presents a gradually in-

creasing loss of motion and sensation below a given level, a cord tumor may be the cause.

3. Fifty-seven per cent of tumors are removable; 42 per cent of patients are completely cured and working, and 25 per cent are improved. About two-thirds of these patients are greatly benefited by operation. Without operation, the disability would, of course, become worse.

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PROTECTING THE PUBLIC

The decision of the Supreme Court making illegal the practice of chiropractic in the Philippines is a deathblow to an occupation which would be elevated to the category of a profession by the charlatans profiting by deluding the faith of the ignorant in any sure-cure remedy of modern quacks.

It goes without saying that the chiropractors in the Philippines have been, in the majority of cases, men of doubtful record and reputation, or mere youngsters who after an indifferent training of a few weeks' duration blossom forth as doctors and savants with the necessary knowledge to treat any one suffering from any of the diseases that afflict man.

And to this calm assumption of scientific sufficiency in a branch of human knowledge that requires both aptitude and intensive study for its acquisition and practice, many of the chiropractors add a tendency to consider their patients much as a highwayman would consider his victims.

The decision of the court came thus betimes, a protection for the public against those who could build their fortunes on the unquestioning faith of the wretched, the sick whose hopes of ultimate cure have no limiting horizon.—*Philippines Herald*.

Good sense is, of all things among men, the most equally distributed; for everyone thinks himself so abundantly provided with it that those even who are the most difficult to satisfy in everything else do not usually desire a larger measure of this quality than they already possess.—*Descartes*.

THE FUNCTION OF THE KIDNEY*

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Abstract

Bowman's discovery (1842) of the continuity of the Malpighian body and the tubule of the kidney constitutes the beginning of modern investigation of kidney function. Until the identity of the functional unit of the kidney had been ascertained, conceptions of the mode of urine formation were necessarily conjectural. Bowman introduced the idea that fluid and salts leave the blood stream in the glomerulus and that the organic solids of urine are secreted by the tubule. Ludwig in 1844 advanced the view that filtration of protein-free fluid takes place in the glomerulus and that reabsorption of fluid occurs in the tubule. The secretion theory of Bowman, later modified by Heidenhain, and the filtration-reabsorption theory of Ludwig have had dominating influence in the subsequent development of modern conceptions of kidney function.

It is the purpose of this paper, not so much to discuss theories of renal function, as to describe experiments recently made which have extended knowledge of this organ. For the sake of clearness it may be stated that the writer believes in the essential soundness of the filtration-reabsorption doctrine.

Five years ago, in planning efforts to obtain more objective evidence concerning certain aspects of the kidney's activity, it was thought that the methods then being developed by Professor Krogh of Copenhagen might be adaptable for direct observation of the frog's kidney. Efforts made by the writer in collaboration with Carl F. Schmidt showed that the tissue of the frog's kidney, when properly illuminated, is sufficiently translucent to permit the vascular apparatus of this structure to be revealed to microscopic observation.

It was soon found that the number of capillaries in a single glomerular tuft and also the number of glomerular tufts through

which blood flowed at any one time may be highly variable. Agencies which dilate the renal blood vessels increase the number; agencies which constrict the renal blood vessels decrease the number. These observations introduce the idea into modern conceptions of renal function that the extent of glomerular vascular surface with which the blood is in contact at any one time is variable. The kidney is able to utilize few or many of its glomerular units according to the state of its nervous control or the composition of the blood flowing through it.

It is obvious that if, for any length of time, a number of the glomeruli of the kidney should fail to function because of cessation of blood-flow through them, these would be subject to damage because of deprivation of oxygen supply. It seems clear that if the function of the whole kidney is carried on at times by a fraction only of its entire glomerular equipment, some means must be available whereby asphyxial damage to the glomeruli not being used is avoided. Discovery of the fact that glomerular blood flow is often intermittent gives information concerning the probable nature of this protective mechanism. Photomicrographs and charts were shown which illustrate the fact that irregular interruptions take place in the flow of blood through individuals which make up a group of closely adjacent glomeruli in a single microscopic field of the living kidney. It is apparent then that while a fraction only of the total number of glomeruli may receive blood, and hence function, at any one time, the personnel of this fraction may be changing from moment to moment, at such tempo that all the glomeruli receive blood within a space of time sufficiently short to avoid damaging asphyxia to any.

The explanation of this phenomenon of intermittence of glomerular blood flow was sought in experiments in which constant constrictor stimuli, nervous or chemical, were applied to the renal blood vessels. These showed that the response of the small

*Abstract of paper presented at the annual meeting of the Colorado State Medical Society, October 29-November 1, 1925.

arteries and arterioles in the kidney to such stimuli is intermittent in character. We conceive that the closure (as the result of stimulus) of a renal arteriole results in the inauguration of conditions in the vessel wall which will soon cause it to reopen. These conditions are asphyxial depression of the arteriolar muscle and the production of dilator substances in the (relatively) anaërobic metabolism of the tissues whose blood supply has been interrupted. Antagonism of vaso-constrictor stimuli and vaso-dilator influences arising from interruption of blood flow may be regarded as at least a partial explanation of the phenomenon of intermittence.

Evidence has been secured that the results described for the frog's kidney are applicable to the mammalian kidney as well. Drs. Hayman and Starr have adapted Nelson's method for counting glomeruli in the mammalian kidney to the problem of enumerating those through which blood is flowing at the moment of injecting a dye (Janus Green B) which stains the glomerular tufts selectively. Using this method, they were able to show that in a rabbit subjected to the action of caffeine 100 per cent of the glomeruli were open to the blood stream; whereas, when adrenalin was injected in varying dosages, only from 5-50 per cent were open.

An obvious deduction from the described observations on intermittence of glomerular blood flow concerns the production of albuminuria under conditions not greatly different from the normal. If the period of intermittent interruptions in glomerular circulation should be made long enough to cause a slight degree of damage to the glomerular membranes albuminuria might be expected to result, for it is known that interruption of blood flow through the whole kidney for a few moments is regularly followed by transient albuminuria. Influences which cause renal vaso-constriction may reasonably be assumed to lengthen the duration of intermittent interruptions in the glomerular circulation. Hence it might be anticipated that any influence known to constrict the renal vessels would cause the

appearance of albumin in the urine. Dr. Starr has tested this assumption. In normal rabbits, intravenous injection of adrenalin prolonged over periods of from 4-6 minutes caused albuminuria. In anaesthetized dogs a similar result was secured and was shown to be completely analogous to that which follows partial compression of the renal artery. Normal cats subjected to emotional excitement (rage or fear) eliminate albumin. No evidence of pathological change could be discerned in any of these kidneys. That the human kidney reacts in similar fashion was shown by the results of tests of the action of the alkaloid ephedrine in man. Its action is similar to that of adrenalin, but may be elicited by hypodermic or oral administration. In those cases in which it caused a rise of blood pressure of 20 mm. Hg or more, transient albuminuria occurred; in those in which no rise of blood pressure took place no albuminuria was detected. These observations throw some light on the production of emotional albuminurias in man as well as on that following extreme muscular exertion, dyspnoea, anaesthesia, and possibly on orthostatic albuminuria.

The experiments thus far described show one mode of adjustment of renal function to excretory requirements of the body. They show also how a slight alteration in the delicacy of this adjustment may cause the symptom of albuminuria.

Another means by which the degree of glomerular function is regulated is to be found in alterations in the relation of the calibres of the afferent and efferent arterioles of the glomerulus. Experimental evidence was described which justifies belief that glomerular pressure and hence glomerular filtration may be governed by the changes in these vessels. Very minute amounts of constrictor substances like adrenalin may cause narrowing of the efferent vessel to a greater degree than the afferent, and in consequence of the slight impediment to exit of blood from the glomerulus, intra-glomerular pressure rises and glomerular filtration is increased. Larger amounts, by causing effective narrowing of the afferent

vessel as well, diminish inflow of blood and decrease glomerular pressure.

Of greater importance probably are observations on the effect of dilator substances upon the glomerular circulation. As stated, they are capable of increasing the number of glomerular capillaries through which the blood simultaneously flows. In addition, they can be thought of as effecting a marked increase in intraglomerular pressure. The means by which this is accomplished is as follows: Between the afferent and efferent vessels, protein-free fluid is separated from the blood plasma. In consequence, the concentration of plasma proteins in the blood flowing through the efferent vessel is higher than in that flowing through the afferent. Experiments have been made by the writer which show that the vaso-dilator action of caffeine, of NaCl, and of sodium nitrite is decreased by increasing the colloid concentration of the fluid in which they are dissolved. Hence we may believe that the concentration which the blood undergoes in its passage through the glomerular capillaries results in a diminution in the vaso-dilating power of certain substances which are contained in it. Water (hydraemia), sodium chloride, sugar, urea, caffeine or its derivatives all produce dilatation of renal vessels. The experiments alluded to show how they may dilate the entrance to the glomerulus more effectively than the exit and so increase the pressure which we believe to be responsible for their glomerular elimination.

Recognition of such mechanisms as those described aids in the understanding of great diuretic response to relatively slight change in composition of the blood.

The discovery that the frog's kidney could easily be rendered accessible to direct observation carried with it the possibility that its structures might also be made accessible to instrumental manipulation. Chambers, of New York, has developed a technique for micro-manipulations of remarkable delicacy. Seeing his experiment led the writer to believe that experimental attacks might be made upon the microscopic structures in the frog's kidney. Wearn suggested that we might construct pipettes,

fine enough to enter the capsule of Bowman and extract the fluid as it was there separated from the plasma. Together we constructed the requisite apparatus and presently found that it was possible to do just this. The conventional tests for various urinary constituents were modified to suit the minute amounts of fluid obtainable. Tests for protein showed that none was present, thus confirming the ancient theory of Ludwig. Sugar and chlorides were found to be present in the glomerular fluid of frogs whose bladder urine, simultaneously collected, contained none. This latter result contains direct and conclusive proof of the existence of a process of reabsorption which proceeds as the glomerular fluid passes along the tubule—a process postulated by Ludwig in his filtration theory. The facts therefore indicate that the glomerular process is one, which if uncorrected, would permit the substances chloride and sugar, indispensable to the organism, to escape and they show that the tubular function of reabsorption is the one which conserves these substances.

A beginning has been made at the quantitative study of the glomerular fluid in comparison with the blood plasma from which it is derived and with the bladder urine which it is destined to become. Already certain differences between the composition of plasma and glomerular fluid have been identified which are not explainable by filtration as we know it to take place through gross structures. Further study of this problem is at present under way.

Not only is it possible to extract fluid from the interior of the capsule of Bowman in the frog's kidney by means of suitable apparatus; it is also possible to inject substances into a single tubule by way of the capsular space. If the substances studied are dyes, or are capable of subsequent identification in the kidney tissue, then something can be learned concerning the fate of these substances when presented to the cells of the tubule in effective concentration on the lumen side only. Dr. Hayman has studied the results of injecting several of the substances which have, in the past, been

used by intravenous injection to test the question of secretion by the tubule. Indigo-carmin, sodium carminate, phenol sulphonephthalein, iron salts, urea—injected in minute amount into the lumen of a single tubule are taken up by the cells of the tubule and yield a picture which is hardly distinguishable from that produced by the intravenous injection of the same substances. Obviously, evidence of secretion by tubules

obtained from the histological picture of renal tissue after intravenous injection of these substances may be completely misleading.

The purpose of this talk has been to indicate that a more direct approach to problems of kidney function has been found and that its utilization may yield an increase in the accuracy and completeness of our information concerning this intricate organ.

THE VALUE OF LABORATORY TESTS IN THE DIAGNOSIS OF KIDNEY EFFICIENCY*

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The modern concept of kidney physiology makes difficult in many cases the presence, or the localization of renal injury in the living patient.

When a differential diagnosis of a given case must be made between a chronic kidney lesion with hypertension, arteriosclerosis with hypertension, and essential hypertension, the problem becomes even greater.

It can be conceded that functional tests to determine the capacity of the kidney are of prime import and the interpretation of their value often is not above question; especially is this true in the case showing few of the generalized manifestations of nephritis.

The diseased kidney either allows substances to pass out which should be retained, or retains substances which should pass out. Functional tests are based upon laboratory examinations to determine such manifestations.

Physiology

Ablation experiments have shown that three-fourths of the renal parenchyma may be removed without any renal insufficiency manifesting itself.

The experiments of Richards have shown that only a fraction of the glomeruli, and presumably of the tubules, work at the same time. The kidney, in short, is made up of an enormous number of functionally equivalent units. Each unit consisting of a glom-

erulus and a long uriniferous tubule. Each unit, or nephron, is a mature kidney. The blood supply of the kidney is the branches of the renal artery leading to the glomerulus where the contents of the arteriole leak into a large capillary tuft. The arteriole leading from the glomerulus is distinctly smaller than the afferent one. This vas afferens forms the sole blood supply of the corresponding proximal and distal convoluted tubule.

Disease may affect the glomerulus, the proximal or distal convoluted tubule or both, or affect the blood supply.

Disuse atrophies the tubular epithelium which no longer has the glomerular filtrate to work upon.

The prevailing theory has it that fluid passes out through the capillary walls of the glomeruli, through the very thin Bowman's capsule purely by a physical process: that this transudate contains constituents in approximately the same concentration as that of the blood plasma, excepting that the glomerular wall allows only the passage to water and crystalloid substances but holds back the colloids.

Aschoff divides the urinary excretory system into three sections, the glomerulus, or filtration apparatus, the proximal convoluted tubule, or resorption apparatus, and the loop of Henle, which serves as a pressure regulator.

Fisher holds that blood rich in carbon dioxide, that is, venous blood, has a tend-

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ency to absorb water or swell, while blood poor in carbon dioxide, that is arterial blood, has a tendency to give up water or shrink. The arterial blood in the glomeruli gives up water readily, while the venous blood in the second set of capillaries, capillaries about the tubules, tends to absorb water. This explains the concentration of urine, but it does not explain the alteration of the various elements. Sodium chloride is concentrated to double its plasma strength, while urea is concentrated about 40 times.

To explain this, Cushney and others divide the constituents of the blood into threshold, and non-threshold bodies. Dextrose, chloride and sodium are threshold bodies and are excreted only when their concentration in the blood exceeds a certain percentage. Threshold bodies are necessary to vital processes. Nonthreshold substances, such as urea and creatinine, are excreted when present in small amounts and are of no use to the body. Colloidal chemists explain the resorption of water in the primary tubule on a physical ground. Threshold substances pass through the glomeruli, but are resorbed along with water through the tubular epithelium.

It is well, however, here to recognize the limitations of these physiologic hypotheses. As Addis and Foster point out: "No preliminary hypothesis should be accepted without thorough criticism, particularly if that hypothesis is used as a foundation for still other and wider hypotheses relating to renal physiology and especially is this so if it is utilized in explaining functional deviations observed in patients."

Tests of Kidney Function

Of the tests some are designed to show the renal function as whole; others to demonstrate the kidneys' ability to perform some one part of its work.

When the glomerular portion of the kidney is diseased, its power to filter is reduced. Products such as creatinine, protein nitrogen and urea are retained in the blood stream. Colloids and blood cells may be excreted.

When the tubules are diseased the function of proper concentration of the urine,

variation in the chloride content of the urine, and the concentration of crystalloid substances are changed.

Casts and Cells in Urine

Very slight changes in the kidney may cause the appearance of a few casts and cells. With high speed centrifuges the number of individuals showing casts have been greatly enhanced in contrast to older statements.

A slight degree of congestion may cause casts, a variety of irritants may cause the appearance of casts. After an anaesthesia a heavy sediment composed of coarsely granular casts may be found in the urine. Casts and cells **persistently** present point to a definite lesion of some sort, and the frequently repeated microscopic examination with reference to casts and cells yields information about the renal process of the greatest value.

It is surprising that this part of a urine analysis is often neglected or done imperfectly. According to Cushney the cast originates in the uriniferous tubule from material excreted from the glomerulus, coagulating as a hyaline matrix and taking place because of the increasing acidity of the contents of the tubule due to the constant reabsorption of water. In this matrix are caught the cells and remnants of cells or granules which may be coarse or fine. If the casts are hyaline, it points to a slight glomerular leakage with no evidence of degeneration of the epithelium lining the tubules; with casts containing red blood cells, slight glomerular hemorrhage is indicated.

Examination of urinary sediments has been neglected for other methods of studying renal function.

Certain conditions must be observed for studying urinary sediments.

Freshly passed urine is necessary. Twenty-four-hour samples, or samples 6 hours old, unless preserved, are poor substitutes. Urine specimens that have become alkaline are unsuited. Urine passed as alkaline has had all casts disintegrated probably, or none have formed. For according to Cushney, the fluid from the glomerulus must be acid for casts actually to form.

Thomas Addis describes what he terms

renal failure casts or broad casts. In cases of advanced kidney disease, where the glomeruli fail to prevent the passage of colloid material and destruction and dilatation of the tubule increase the lumen of the tubule, these casts are found.

Two Hour Renal Test

The two hour concentration test, a modification of the Mosenthal Test, is probably one of the most valuable tests of the renal function as a whole. It is a study of the response of the kidney at different times during 24 hours. Normal kidneys react to the stimulus of work, rest and food, and put out a urine in which the specific gravity, nitrogen and salt percentage vary at different times during the 24 hours. The diseased kidney is unable to vary the concentration of the urine or the percentage of these various substances in different specimens passed during 24 hours.

The test is a test of kidney effort. The diet should cause considerable renal work. A general lowering of the specific gravity below 1018 with a variation of 10 points below this figure or even more, fixation of gravity in the 2 hour excretion is indicative definitely of kidney damage. Add to this an increase of night volume beyond 600 cc, one should not doubt the presence of a chronic nephritis.

Water Test

A test known as the water test is gaining in favor in some clinics. In a general way it is similar to the two hour renal test.

The patient is placed on a normal fluid intake for several days, then after a fast from the evening meal of the night before 1000 to 1500 cc of water are taken at 8 a. m. No food or fluid is then taken until 12 noon. From 12 noon to 9 p. m., the patient may eat any ordinary food, but no fluid. The bladder should be emptied at 8 a. m. and urine collected at 9, 10, 11, 12, 3, 6 and 9. Also collect the night amount in one specimen. The urine is studied as to specific gravity. A normal individual will show variations in the specific gravity in the different specimens from 1002 to 1025. In renal disease the ability to vary the specific gravity is interfered with from almost complete

fixation in severe cases to moderate fixation in more mild cases.

Phenolsulphonpthalein Test

Phenolsulphonpthalein is an organic dye stuff toward which the body reacts as it does toward urea. It is excreted through the glomerular epithelium and, under normal conditions, is not resorbed through the tubular epithelium. It is a test of the glomerular function. In conditions of disease of the kidney it does not readily pass through the glomeruli. Pthalein is used in a definite dose, 1 cc. given intravenously, and an estimation made of the excretion of the dye. The urine is collected at the end of 1 and 2 hours. At the Peter Bent Brigham Hospital 50 per cent recovery of the urine in 2 hours is considered as showing no kidney pathology. Many cases, however, excrete more than this amount, but certain cases, in which it seems quite evident that there is no renal disturbance, excrete this amount. Frequent sources of error exist in its use which are worth while to mention:

1. Failure of the patient completely to empty the bladder because of enlarged prostate, cystocele, nervousness.
2. Failure of the laboratory exactly to match the excreted amount against the standard.
3. Presence of cyanosis in the patient.
4. Presence of bile or blood in the urine. Both of the latter substances can be removed from the urine by precipitation with alcoholic solution of zinc acetate.

Shaw has established what he terms as a normal curve of pthalein output, collecting the urine every 15 minutes for the period of 2 hours. The curve is characterized by an average output of 40 per cent during the first 15 minutes period, 17 per cent during the second, 8 per cent during the 3d and 4 per cent during the 4th, and a gradual decrease to one-half per cent in the 8th fifteen minute period. When this test is carried into use its value in the abnormal case may be worth while in determining kidney damage.

A study of the blood in renal disease is chiefly of value in determining if the kidneys are eliminating properly the non-protein nitrogen and the chlorides. If the kidneys are diseased, all the different elements that go to make up the non-protein nitrogen are increased, urea, uric acid, ammonia, creatin, creatinin and the rest nitrogen.

Blood should be taken in the morning before any work is done by the body.

The blood urea nitrogen is perhaps the most valuable test for diagnosis, prognosis and treatment. A urea nitrogen above 15 mgs. in a fasting case usually means nephritis, if one can rule out passive congestion, bilateral stones, back pressure and hydronephrosis and bilateral tuberculosis. Blood urea nitrogen is a product largely of the protein taken in the diet together with additions from the breakdown of endogenous tissue protein. As such, therefore, its level in the blood stream is determined by three factors: protein intake, degree of renal insufficiency and amount of tissue protein metabolism. In ordinary cases this last factor is negligible.

In a normal individual the urea nitrogen makes up about 40-50 per cent of the nitrogen of the blood. In renal insufficiency this percentage rises to 70-80 per cent. Mosen-thal has shown that this ratio remains fairly constant in inactive chronic nephritis, irrespective of the level of the non-protein nitrogen. In this way, some cases will have an increased blood urea nitrogen when the non-protein nitrogen, though a high normal, will be within normal bounds.

Of all the non-protein nitrogen substances in the blood stream, uric acid seems to be the hardest for the kidney to secrete. Myers and Bauman consider it the first substance that begins to accumulate in the blood in renal insufficiency. I have found the utmost difficulty in making accurate determinations of this substance.

Much attention, I have given to creatinin determination in the blood in the diagnosis of suspected renal disease, as well as in determining the extent of the kidney lesion. Myers considers it one of the most easily excreted substances; therefore, its increase is an indication of considerable renal insufficiency. Myers considers that a blood creatinin above 5 mgs. per 100 cc. is usually indicative of death in a short time. In acute nephritis, however, it may reach as high as 19 mgs. and return to normal.

With regard to tests for chlorides and other mineral metabolites there is much con-

fusion. Methods for the determination of the chloride in the blood have been in existence for many years, and although much has been written, and is being written about it, there is a tremendous uncertainty about the whole subject. This is due to the fact that the chlorides in the blood are a very labile substance and are affected by many conditions. The mere method of taking the blood may cause a change in its concentration in the blood plasma. In the giving of soda or other diuretics, the presence of high blood sugar, both tend to change the chloride in the blood stream.

In acute nephritis, we usually find an increase in blood chlorides while oedema is present. It falls to normal with a disappearance of the oedema. Occasionally it rises without a return of the oedema. In sub-acute nephritis and in chronic nephritis with oedema, we find a considerable increase of blood chloride. This continues long after there is any obvious oedema. In chronic nephritis with hypertension, there may be, or may not be, an increase in chloride retention, even if there is considerable retention of nitrogen. This is assumed to be due to the fact that the kidney may be insufficient for the one substance, and not for the other.

In terminal stages of chronic hypertensive nephritis, we have found a low blood chloride. While some of these are interesting observations and perhaps would be of value in a given case, we were not able to apply tests for chlorides with a degree of satisfaction.

In terminal stages of chronic hypertensive nephritis, acidosis is the rule. It is only rarely of grave concern in nephritis even when the carbon dioxide combining power of the blood has been raised by the administration of alkalies, but little change takes place in the clinical condition of the patient.

The increased blood sugar found in cases of subacute and chronic nephritis with hypertension is still somewhat a complicated problem. As a rule it is never high, usually around 0.2 per cent. I have not been able to interpret findings of blood sugar consistently.

The general physician readily understands

the difficulty of attempting to localize renal injury in a clinical case. Especially is this true, if the post mortem findings are placed alongside the clinical diagnosis.

Christian has urged that renal pathology be designated, acute or chronic nephritis, with or without hypertension.

With such a simple classification, tests of renal function are made applicable and autopsy reports of kidney pathology coincide with an accurate diagnosis.

Case 1, Nephrosis: L. Mueller, age 17 years, female, came under observation July, 1920, and died November, 1922.

Complaint: Following an acute febrile disturbance in February, the patient noticed her feet were swelling, also her hands and face, and complained of weakness.

Past history: No past history of illness excepting infectious diseases of early childhood.

Family history: Not important.

Examination: Examination showed a poorly developed and nourished girl, weighing 128 pounds with oedema of extremities. Apparent anemia, buccal cavity negative. Heart and lungs negative; liver and spleen of normal size. Blood pressure 110 systolic—65 diastolic.

Urine examination: specific gravity 1032-1037, albumen often as high as 24 gms. per liter. Sediment rich in casts, a finely granular type. No blood. Two hour test showed oliguria present day and night with specific gravity high. Non-protein nitrogen and urea of blood were within normal limits, plasma chlorides increased to 5.8 per liter. Pheno-sulphonethalein elimination 45 per cent in 2 hours.

Under rest in bed for no other apparent reason the oedema began to clear up. Weight dropped to 117 pounds. Plasma chlorides remained the same. Moderate diuresis took place, urine increasing to 2700 cc. of urine per day. Chlorides of the urine increased from one and one-half gms. per day to 8 to 10 gms. per day. No salt was being given and food contained approximately one-half gm. of chlorides, and from 20 to 35 gms. of protein daily. The last of August, the oliguria again became marked, chloride excretion dropped to 7 gms. daily. The patient was then placed upon an Epstein dietary regime—70 gms. of protein. Immediately the nitrogen retention became marked. Nonprotein nitrogen rose to 91 mgs.—urea nitrogen 35 mgs. Blood pressure rose to 130 systolic. The urine contained 30 gms. of albumen to the liter.

In the fall of 1921, urine still contained albumen. Specific gravity was largely fixed at 1015. Creatinin 2 gms. per 100 cc. Nonprotein nitrogen 100 mgms. per 100 cc. Blood and blood pressure had reached 150 systolic—100 diastolic. Oedema only slightly present. Throughout 1922 oedema fluctuated, but always present. Plasma chlorides 6.0 to 6.2 gms. per liter. Complete fixation of specific gravity at 1012. Casts and albumen as before.

In the fall, patient developed an acute bronchitis which was subsequently proven to be an acute military tuberculosis and succumbed.

Post mortem examination: Productive nephritis (small, white kidney) generalized military tuberculosis of lungs, spleen, liver, kidneys, pancreas, bladder, peritoneum and mediastinal glands.

Macroscopic examination: Kidneys: Left kidney weighed 60 gms. Vessels not markedly arteriosclerotic; capsule opaque, cut surface of kidney pale, greyish yellow; the cortex and medulla poorly differentiated; cortex very narrow, markings lost, capsule slightly adherent and, when stripped, left a moderately finely granular surface studded with tubercles. The right kidney was small, weighing 55 gms.—findings similar.

Microscopic examination: Kidney showed widespread productive lesions. Changes in the glomeruli were marked and showed all stages of thickening of capsule, fibrosis and atrophy of the tufts. Connective tissue between the tubules. Many of the tubules contained casts. The epithelium lining the tubules showed varying stages of granular degeneration. Definite scattered tubercles also were seen showing typical epithelioid proliferation, early central necrosis and marked peripheral round celled infiltration.

From a laboratory study the following points are of interest:

1. Presence of large amounts of albumen at all times.
2. Specific gravity of urine fixed at a high point in the early stages progressing to a low level as contraction of the kidney developed with continued fixation of gravity.
3. Absence of blood in urine.
4. Granular and hyaline casts constantly present.
5. Output urine uniformly small, seldom above 2000 cc.
6. Low urinary chlorides and increase of chlorides in blood varying with the oedema.
7. Urea and nonprotein nitrogen not disturbed in blood in early stages. Increased as contracted kidney developed.

Interpretation

Diagnosis of nephritis was arrived at largely by laboratory tests. The progress of disease was illuminated by the definite laboratory findings and post mortem pathology confirmed the process as one of gradual progression of the proliferative process.

Case 2. Male, aged 33 years.

Complaint: Headache, general weakness, nervousness and loss of weight. Up to 1 year ago in good health. Began first to have headaches, occipital in character and increased in severity. Six months ago, he became nervous and could not sleep and has lost 20 pounds in weight from that date.

Physical examination: Appearance healthy. Blood pressure 195 systolic—110 diastolic. Weight 140 pounds. Slight retinitis, more marked in right eye. Heart enlargement, left ventricular preponderance, vessels thickened. Accentuation 2d aortic sound—otherwise negative physical findings throughout.

Laboratory findings: Five million reds, haemoglobin 86 per cent, leukocytes 9,000. Differential, normal. Wassermann negative. Urea, 30 mgs. per 100 cc. blood, creatinin 1.6 mgs. specific gravity 1006-1026. Albumen none. Occasional finely granular and hyaline cast. Phenolsulphonethalein 45 per cent.

The diagnosis of nephritis with hypertension or essential hypertension was certainly in doubt, and an effort was made to differentiate by repeated examinations of the blood and urine. Six months after the first examinations were made he was accidentally killed. A post mortem was held, and the post mortem findings of his kidneys were as follows:

Kidneys weighed 135 gms. each. Capsule was

adherent and when stripped revealed a finely granular surface. On section the cut surface showed some pale areas.

Microscopically, there were numerous focal areas of interstitial connective tissue in cortex. The glomeruli were in areas considerably increased in size, some twice the size of a normal glomerulus. The glomeruli showed thickening of the capsule. Lobulation and partial hyalinization of the tufts. Occasional glomerulus was completely obliterated. The tubular epithelium appeared in areas atrophic. Tubular lumen dilated and occasionally cystic. Hyaline casts were seen in the limits of Henle's loop. The arteries showed distinct thickening of the intima and inner portion of the media with hyalinization. Calcareous deposits were seen in the medullary portion of the adjacent tubules.

Volhard and Fahr have used the term "malignant hypertension" in those cases of vascular sclerosis which later develop definite renal insufficiency.

Fishberg's concept of essential hypertension includes "those cases of chronic hypertension which neither clinically or anatomically can be demonstrated to have evolved from an antecedent inflammatory disease of the kidneys or from urinary obstruction."

He goes further and states that "we all occasionally are confronted at necropsy by a secondary (i. e., post nephritic) contracted kidney despite the clinical features of the case gave no indication that the hypertension was associated with inflammatory disease of the kidneys."

In the foregoing case, renal function tests were essentially normal—lesions of the renal parenchyma had not proceeded so far that compensation by vicariously functioning remaining unite was impossible.

Numerous cases we have had of essential hypertension showing to a degree increase of nonprotein nitrogen urea and lessened pthalein output.

Interpretation

Renal function tests classified this case largely as one which might be termed essential hypertension.

Case 3. Woman, aged 50 years, blood pressure 210 systolic—130 diastolic, urea nitrogen 18.6 mgs., gradually increasing to 45.6 mgs. Phenolsulphonphthalein excretion at first 15 per cent, diminishing to 3 per cent, and finally to zero in 2 hours. Specific gravity on 2 hour concentration tests varied from 1008 to 1012—Creatinin 2.3 mgs. increasing to 6 mgs. Cardiac Decompensation and death ensued.

Findings: Heart weighed 450 gms. Marked atherosclerosis of the large coronary vessel and aorta and myomalacia cordis.

Kidneys: Red, granular kidneys 100 gms. each. Marked hyaline degeneration of glomeruli with fibrous replacement of parenchyma: areas of intact glomeruli which showed passive congestion. There was extreme arteriosclerosis of vas afferentia and the vasainterlobulares progressing to complete obliteration of the lumen. Marked atrophy of varying degree and dilatation of tubules, the lining epithelium varying in size, some atrophic some hypertrophic. Granular areas of flat atrophic epithelium lining some tubules.

Conclusion: Diagnosis based on functional tests revealed a high degree of nephritis.

While fixation of specific gravity was marked, the concentration power was not greatly impaired.

Post mortem findings: Post mortem revealed nephritis progressive, associated with an arteriosclerosis.

Conclusions

Certain general conclusions can be made from functional studies:

1. No one test is certain for the recognition of early kidney pathology or the absence of renal pathology.
2. All tests which are proven of value should be made repeatedly and correlated.
3. Because of the failure of present functional tests to determine the localization of early kidney lesions, a differential diagnosis of hypertension in nephritis and essential hypertension is rarely possible.
4. Advanced kidney pathology can be determined by laboratory methods.

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DISCUSSION

Dr. W. M. Spitzer, Denver: As excellent a paper as this should not go without discussion. The doctor has not only presented an excellent essay but has presented it very succinctly and concisely for such an immense subject. Before we can utilize the kidney function tests, we must

learn exactly what the functions of the different parts of the kidney are. We must know whether phenolsulphonephthalein or indigo-carmin or phloridzin or other substances injected into the blood stream and measured as they come out in the urine are excreted by the epithelium of the glomerulus, the epithelium of the descending or the ascending loops of Henle, or elsewhere along the line.

Dr. Heller mentions that one worker in this field describes the phenolsulphonephthalein test as best accomplished by measuring the quantity excreted each 15 minutes, giving most credit to the kidney which excretes the highest amount in the first 15 minutes, the next highest quantity in the next 15 minutes, and thus decreasing by 15 minute periods in quantity. With this observer I agree, and for the following reason: That 90 per cent or thereabouts of phenolsulphonephthalein is excreted by the kidney, whether the kidney is capable of performing the functions of the body or not. The only difference, then, is that individuals with sick kidneys may take twenty-four hours to throw out 90 per cent of the phenolsulphonephthalein injected into the blood stream, while the individual with healthy kidneys will probably throw out 90 per cent within the first three hours.

The phenolsulphonephthalein test, as well as all other tests of this type, has failed to work out in actual practice, as we often see kidneys that we know to be incapable of performing their function throw out a high percentage of phenolsulphonephthalein, or other substance used in this type of test, in a very short time; whereas known healthy kidneys oftentimes throw out a much smaller percentage of these substances in a much longer period of time.

In actual practice we must depend on blood chemistry to demonstrate kidney function, and this is the only worth while kidney function test at the present time. The blood chemistry shows us excesses of uric acid, urea nitrogen, non-protein nitrogen, sugar, chlorides, creatinin, creatin, and other substances which we know the kidney should excrete. When, therefore, these substances are found in excess in the blood, we know that the kidneys are not properly performing their functions.

Therefore, until something better and more practical than blood chemistry is offered us to measure kidney function, it is our duty to rely on blood chemistry.

Dr. A. N. Richards, Philadelphia: To accept Dr. Boyd's invitation to discuss Dr. Heller's paper involves some risk. The work on the kidney in which I have been interested has not been designed for the primary purpose of evaluating this or that clinical test of renal function, but rather for the purpose of obtaining a clearer understanding of how the kidney performs its work. Progress has been made toward more accurate ideas of glomerular function; but the glomerulus is only a small part of the kidney substance.

Dr. Spitzer has spoken of urea. We have evidence that this substance is eliminated by the glomerulus; to what extent can not be safely stated at present because our methods for the quantitative estimation of very minute amounts are not as satisfactory as they should be. I don't know whether or not some urea is in addition "secreted" by the tubule. My inclination is at present to think that all of the substances which pass from the blood into the urine as eliminated through the glomerulus, the composition of finished urine being determined by the reabsorp-

tion processes which take place in the tubule. The conditions which control these processes are not known. Hence, since we are not completely sure concerning the existence or non-existence of "secretion" by tubules, and cannot define the processes which control the tubular processes of reabsorption, it seems to me that to take the course of elimination of one substance—particularly a substance foreign to the body—as a true index of the function of the kidney is dangerous. But since we may be sure that the business of the kidney is to eliminate fluid and solids in such proportions as to maintain constancy of composition of body tissues and fluids, such a test as that of Mosenthal would seem to be better calculated to give an approximate idea of the adequacy of the kidney in this sense. It seems to me that the indigo-carmin test and the phenol red test involve assumptions about which we are uncertain. This I take it is the point which Dr. Heller's paper has emphasized.

Dr. T. D. Stoddard, Pueblo: I am not going to discuss Dr. Heller's paper as I cannot do it; I do not know enough about it; but I want to say this, that I believe a false impression has gotten abroad among the men here. We were told by a man whom we all respect and honor that our mental processes are as far behind the Greek as the Hottentot is behind us. Professor Sewell made that statement yesterday, and I know he was honest in making it, but he had not listened to Dr. Richards' paper. If he had, he never would have said that. I just want to correct the impression.

Dr. O. S. Fowler, Denver: I think I have not the ability of expression to give my real appreciation of Dr. Heller's paper and findings in his laboratory work, and the extreme care and accuracy he has taken to work out these things. There are certain things that he brought out which fit in with my own findings of several years in the human, and I hope that Dr. Richards will sooner or later apply all these things to the human, if it is possible, and to give us further information along those lines. For instance, his point about albuminuria under increased tension, blood tension, with the administration of adrenalin, is extremely interesting. I want to say this in connection with albuminuria in the human; I have said it a number of times, and I have proved it to my own satisfaction before I said it, that at least 90 per cent of cases showing albuminuria, were surgical. I came to that conclusion in this way: Many, many cases we pass as nephritis are not truly nephritic at all. They are simple types of transient albuminuria, which I am thinking now are caused by the increased renal tension. The fact that these albuminurias accompany prolapse of the kidney, and the albuminuria is relieved by the simple procedure of replacing the kidney, it occurs to me that the prolapse in some manner must or might induce a localized increased blood pressure in the kidney. Now, if that is true then the correction of the pressure of the inflow and the outflow of the blood to the kidney would explain the reason why we had an albuminuria previously, and possibly it is simply due to an increased mechanical pressure on the renal vein, giving us a distinct localized high tension of the blood in the kidneys. There is another point in this matter. I spoke before this Society, in regard to the matter of the regeneration of kidney tissues. I do not know whether there is any connection between that and the resting periods of the tufts; but I have had one case at least in this regard.

a case from Colorado Springs, in which one kidney was entirely destroyed by tuberculosis, was removed, and one-third of the other kidney was removed leaving her whole kidney function depending on two-thirds of one kidney, and she recovered a normal elimination of urine and of urinary products. Now, I would like to ask Dr. Richards whether or not it is possible that this disease might rest for extremely long periods, or that they may regenerate. Another case of regeneration of the kidney function when there is destruction sufficient, or apparently sufficient, that we would think that kidney had lost all its function,—I wish to call your attention to that again, the case of a woman where the left kidney was dilated so that the shell was no thicker than a piece of blotting paper, which I removed, and the right was extremely badly damaged, so badly damaged that we would not hesitate to take it out, and yet that patient recovered normal function of this very badly damaged kidney. I wonder what relation there is between that, between those facts which I know and have experienced, and his experiments that he has given us today. Is it possible, Dr. Richards, that glomeruli recover after damage, or that they regenerate, or generate new tufts? Have you had anything in your experiments thus far to determine that?

There is such a wide space between what we are talking about. This is on the human and on the regeneration situation, and there is such a wide space that there may be no correlation at this time.

Dr. Heller (in closing): It seems to me very wise at the present time with the knowledge of kidney pathology from a clinical and microscopic standpoint to hold closely to the attitude that Dr. Christian and others have that the diagnosis of kidney lesions should be classified on a basis of nephritis, acute and chronic, with or without hypertension. Primarily Dr. Richards has demonstrated kidney physiology. Correlating his physiology to the process of disease of the kidney, we do not know what the function of uriniferous tubules is. Therefore, we are in a position where we are attempting to determine kidney lesions based upon function tests not understanding the normal function of the kidney units. At the present time the only functional determinations which have a certain definite value are:

1. Chemical Blood Determinations, showing retention of substances in the blood stream which the kidney should eliminate.
2. Concentration and Water Elimination Tests of value in determining the adaptability of the kidney to physiologic needs.

Weakness in their interpretation in terms of kidney pathology of course is obvious.

APPRAISING CRITICISM

I have detailed the facts as they have appeared to me and I have mentioned interpretations of them: but I do not conceal from myself that, in medical territory, it is difficult to support one's self wholly on subjective foundations. I do not forget that Medicine and Veterinary practice are foreign to me. I desire judgment and criticism upon all my contributions. Little tolerant of frivolous or prejudiced contradiction, contemptuous of that ignorant criticism which doubts on principle, I welcome with open arms the militant attack which has a method in doubting and whose rule of conduct has the motto "More light."

—Louis Pasteur.

IF

If you can keep your head when all about you
Are losing theirs and blaming it on you,
If you can trust yourself when all men doubt you,
But make allowance for their doubting too;
If you can wait and not be tired by waiting,
Or being lied about, don't deal in lies,
Or being hated don't give way to hating,
And yet don't look too good, nor talk too wise:

If you can dream—and not make dreams your
master;
If you can think—and not make thoughts your aim,
If you can meet with Triumph and Disaster
And treat those two imposters just the same;
If you can bear to hear the truth you've spoken
Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to, broken,
And stoop and build 'em up with worn-out tools:

If you can make one heap of all your winnings
And risk it on one turn of pitch-and-toss,
And lose, and start again at your beginnings
And never breathe a word about your loss;
If you can force your heart and nerve and sinew
To serve your turn long after they are gone,
And so hold on when there is nothing in you
Except the Will which says to them: "Hold on."

If you can talk with crowds and keep your virtue,
Or walk with Kings—nor lose the common touch,
If neither foes nor loving friends can hurt you,
If all men count with you, but none too much;
If you can fill the unforgiving minute
With sixty seconds' worth of distance run,
Yours is the Earth and everything that's in it,
And—which is more—you'll be a Man, my son.
—Rudyard Kipling.

EMANCIPATION

The process of emancipating natural science from current prejudices, both of the learned and of the unlearned, has been long and painful, and is not wholly completed yet. If we go back to the opening of the seventeenth century we find three men whose business it was, above all, to present and defend common sense in the natural sciences. The most eloquent and variedly persuasive of these was Lord Bacon. Then there was the young Descartes trying to shake himself loose from his training in a Jesuit seminary by going into the Thirty Years' War, and starting his intellectual life all over by giving up for the moment all he had been taught. Galileo had committed an offense of a grave character by discussing in the mother tongue the problems of physics. In his old age he was imprisoned and sentenced to repeat the seven penitential psalms for differing from Aristotle and Moses and the teachings of the theologians. On hearing Galileo's fate, Descartes burned a book he had written, *On the World*, lest he, too, get into trouble.

From that time down to the days of Huxley and John Fiske the struggle has continued, and still continues—the Three Hundred Years' War for intellectual dealing, with natural phenomena.—James Harvey Robinson in *The Mind in the Making*.

The Delaware State Board of Health recently ruled that all persons having whooping cough should be compelled to wear a bright yellow arm band bearing the words "Whooping Cough—State Board of Health."

THE SURGICAL TREATMENT OF THE OVARY*

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No organ in the body is more prone to undergo changes, especially cyst formations, than the ovary. Monthly variations with maturation of the graffian follicle; the production of corpora lutea with artesia, and the secretory and proliferating character of its epithelium render it an organ in which physiological functions are easily converted into pathological processes.

Not very many years ago ovaries were removed with little cause and without much consideration. At the present time for certain reasons, we realize that it may be better to remove a sound ovary if the other happens to be diseased. With the standardization of hospitals, which necessitates the examination of all tissues obtained from the operating room, many ovaries are submitted, which in the opinion of the pathologist should not be removed. It is at the request of one of these physicians that this paper is presented.

Probably many ovaries are sacrificed as a result of operations on acute pelvic inflammatory diseases. This is a condition in which it is now almost universally agreed that conservatism is the best procedure. Acute gonorrheal salpingitis will, in most instances, subside completely under rest, dry heat to the abdomen, hot douches or milk injections. Frequent leucocyte counts are a good guide to the progress or subsidence of the infection.

Second or subsequent attacks, though they produce further and more complete destruction, should be given a trial along the same lines. Later, if it becomes necessary to operate, no definite rule can be given, for what should be done depends upon lesions present, the age of the patient, her social condition and the judgment and experience of the surgeon. Undoubtedly the best results, as regards symptomatic cures, are obtained by a complete operation and, with much involvement, such a procedure is essential. In the young every effort should be

made to conserve a tube or a part of one, or an ovary or a part of an ovary.

The important phase of this question is the avoidance of operation in the acute or early stages of the infection when ovaries would be sacrificed which, if operation becomes necessary later, could be saved.

Tuberculous salpingitis is more common than is generally believed. Of cases of tubal inflammation, Williams found 8 per cent tuberculous, while other figures vary from 4 to 12 per cent. The true condition is apt to go unrecognized without histological examination. Norris suspected less than 50 per cent prior to microscopical examination, while Williams grossly recognized but 25 per cent.

There is a difference of opinion as to the advisability of operations on pelvic tuberculosis. Rollier's excellent results in various forms of surgical tuberculosis with open air, and sunlight, and now the alpine lamp, are well known. Pelvic tuberculosis seems to lend itself to this form of treatment.

Palmer Findley and others have been strong advocates of non-operative interference. At the German congress held in Munich in 1911, the majority of the leading gynecologists supported operative measures. Sellheim and Herff were less favorable to operation and Sippel recommended operation when conservative treatment failed.

In deciding upon operative measures each case must be judged individually. Pelvic tuberculosis is so rarely, if ever, primary that to all practical purposes every case should be regarded as secondary to a lesion elsewhere, and the condition of this focus whether active or non-active is one of the most important factors in deciding upon operation.

We are here especially concerned with the treatment of the ovary. We find this organ particularly resistant to tuberculosis. A peri-oophoritis is frequently associated with tuberculous peritonitis, occasionally by extension through a ruptured graffian folli-

*Read at the annual meeting of the Colorado State Medical Society, Sept. 29-Oct. 1, 1925.

cle or by hemotogenous invasion the ovary becomes converted into a cheesy abscess. To illustrate the infrequency of ovarian tuberculosis, as late as 1880 Brassaud stated that there was not a single specimen of tuberculosis of the ovary in the museum of the College of France.

Minto performed animal experiments which convinced him of the advisability of a double oophorectomy. Control animals, in which the ovaries were not removed, succumbed earlier than those in which ovariectomy was done. Such results need not be analogous in women, and Norris states that it is exceptional when one or both ovaries cannot be spared. The tubes are involved in from 90 to 100 per cent and both should be removed, though one is grossly normal. The endometrium is involved in from 20 to 30 per cent of cases of pelvic tuberculosis, so removal of the uterus is usually advisable, but in the young individual, it is exceptional to have to remove an ovary.

There is much speculation as to the cause and much doubt in the minds of surgeons regarding cystic degeneration of the ovary (microcystic or polycystic degeneration). It is spoken of as chronic oophoritis by the authors. The bacterial origin suggested by Rosenow and Davis is open to doubt (*Streptococcus veridens* in 50 per cent, the *Welch bacillus* in 33 per cent.) Peri-oophoritic adhesions may in some instances produce a moderate degree of polycystic formation though usually sclerosis and atrophy supervene. The most recent idea is that some stimulus causes the ripening of numerous follicles, which by the inhibitory action of the corpus luteum become arrested at various periods of development.

Frank points out that the sow during pregnancy and near rut develops grape like cysts from corpora lutea (3 to 5) and multiple cystic follicles. This observation may apply in some degree to the human ovary.

What is most important is that the condition is probably transient. Observations at re-operation should be utilized to determine this point.

A transitory sterility may result from polycystic ovaries, though Davis reports

only 10 of 62 cases sterile. Gebhard describes these cysts as physiological. The removal of cystic ovaries is practiced by some operators. This procedure is undoubtedly wrong. Resection and igni-puncture are probably of no value as they do not remove the cause.

Regarding retention cysts (follicle cysts or corpus luteum cysts) classed as non-proliferating cysts, they are usually monocular, small, rarely reaching a size larger than the fist.

Occasionally, due to the active secretion of its lining membrane, a cyst may acquire the size of a man's head, though such a tumor cannot be truly regarded as a retention cyst.

Though papillary growths have been reported as arising from retention cysts, there is ordinarily no tendency to papillary formation, they are essentially benign.

It may be said categorically that the treatment of all ovarian cysts is removal. This applies even to retention cysts; they are a source of danger in that they may give rise to torsion or become involved in pelvic inflammation. In the young, if the cyst is small and does not incorporate the whole ovary, it may be resected. The other ovary should not be removed.

Theca lutein cysts, which accompany hydatidiform mole or chorio-epithelioma in roughly 50 per cent of cases, represent an interesting type of neoplasm. They are polycystic tumors filled with a clear fluid and lined by one or more layers of lutein cells. The individual cysts, 5 to 6 centimeters in diameter, cause the ovary to attain a diameter of from 10 to 15 centimeters.

Pick and Fränkel believe that the ovarian stimulus produces the pathologic change in the ovum, Seitz believes that an over active chorion causes the ovarian change. Willard and Seitz state that less pronounced changes occur in normal pregnancy, though Williams does not believe that these changes are identical with the tumor under discussion.

The fact that the lutein cysts may undergo spontaneous regression after expulsion of a mole shows that there is a genetic relationship between the two processes and

for this reason in hydatidiform mole it is permissible to await the outcome. Fränkel states that, if continued enlargement is noted, extirpation is indicated. In chorio epithelioma the operation is always complete, both ovaries being removed as in cancer of the uterus.

About 75 per cent of ovarian cysts are of the variety known as pseudomucin cyst adenoma. Though they may contain papillary growths, this type of tumor, from a clinical standpoint, is classed as benign. They are usually unilateral and, unless the patient has passed the climax, the second ovary, if normal, should be left. An ovary containing a pseudo-mucinous cyst should, however, never be resected, as an apparently healthy portion may contain microscopic pseudo-mucinous glands and will recur.

Papillae may fill the lumen of the cyst or penetrate the wall and become malignant by implantation with a progressive dissemination of pseudo-mucin throughout the abdomen. Fifty per cent of the papillary form are bilateral. Very rarely the removal of the primary ovarian growth is followed by the disappearance of peritoneal implants.

After rupture of an ovarian cyst, not an uncommon occurrence, the colloid material from a pseudo-mucinous cyst pours into the peritoneal cavity. The substance cannot be readily absorbed and, if secreting cells are contained, these cell complexes continue to produce a large amount of material.

Malignant changes rarely occur in parts of a pseudo-mucinous cyst, or in peritoneal implants of such cysts.

Of 211 cases of pseudo-mucinous cysts, Pfannenstiel reports four deaths from recurrence, of the papillary cystomata, 75 per cent remained permanently well. Incomplete operations are never followed by the disappearance of tumor nests.

Because of the rare possibility of carcinomatous degeneration, a gross examination of the tumor should be made before closing the abdomen, and a complete hysterectomy done, if such a change is discovered.

Schroder has collected 6, and Polano 7 cases of recurrence of the type of the pri-

mary growth in the scar of the abdominal wall.

Serous cyst adenomata are less frequent than the preceding variety (8 to 23 per cent of ovarian cysts) but have not the same favorable prognosis.

Though usually unilateral, they may have a tendency to grow in both ovaries, a long interval may however elapse before the second ovary shows tumor formation.

The majority of serous cysts contain papillomata within the cavity and on the surface in almost one out of every ten. Of the papillomatous tumors about 60 per cent are bilateral. Peritoneal implants were found by Pfannenstiel in 13 per cent.

Here too, seed papillomata may in rare instances disappear spontaneously following the removal of the primary growth, but according to Fromme only 50 per cent of the papillary forms are cured by any operation.

The non-papillary cystomata are usually benign but even they may recur in cancerous form.

These cysts have a tendency to develop near the hilus of the ovary and to possess a poor pedicle, or to be intraligamentous making their removal difficult.

On encountering a serous cyst adenoma, because of their frequent bilateral formation, both ovaries should be removed unless the patient is very young.

Considering the question of papillomata and malignancy, one often sees a surgeon puncture an ovarian cyst in order to avoid making a large abdominal incision. Large incisions carry little more danger than small ones. An incision from ensiform to symphysis is to be preferred to the possible and large risk of spilling papillomatous or malignant particles into the peritoneal cavity.

Primary carcinomata of the ovary represents 10 to 12 per cent of ovarian neoplasms. If statistics covering cancerous pseudo mucinous and serous cyst adenomata were available, the percentage would doubtless be higher. The condition is bilateral in from 36.7 (Kelly) to 46 per cent (Sippert); while, including ovaries which later developed malignancy, Pfannenstiel found 90.9 per cent

bilateral. A bloody ascitic fluid is present in 78 per cent.

The serosa of every abdominal organ is susceptible to metastatic implants, the pelvic peritoneum is first involved, later a diffuse peritoneal carcinomatosis.

The prognosis is poor. Pfannenstiel reports 83.6 per cent recurrences in papillary growths and 66 per cent in solid cancer. When unilateral, recurrence was 50 per cent (Hofmeier), when bilateral, 90 per cent.

Many cases of bilateral ovarian growths are doubtless secondary to unrecognized gastro-intestinal or mammary cancers. (Krunkenberg tumors.) They involve the ovaries by direct extension or by gravitating to the pelvis, enter through a ruptured graffian follicle, or by extending lymphatic infection through retro-peritoneal lymph channels. Handley believes that breast cancers invade the ovary by spreading along deep channels of the abdominal wall entering the abdomen through the epigastric triangle.

Fibroma or fibromyoma are hard diffuse growths usually retaining the shape of the ovary and sometimes attain in a large size. They constitute from 1.3 per cent (Hohne) to 5.9 per cent (Kelly) of ovarian tumors. Unless the growth is minute, ascites is always present; they are bilateral in about 20 per cent. Fibromata are benign and all agree that removal of the growth constitutes a cure.

Sarcoma of the ovary is reported as representing 2.5 (Sippert) to 5.4 per cent (Pfannenstiel) of ovarian growths. It is most frequent before the 25th year. Ascites is present in 67 to 70 per cent and in 32.3 per cent the tumor is present on both sides.

Large and alveolar sarcomata are the most malignant. The prognosis becomes worse as the softer tumors are dealt with; a fibrosarcoma almost never recurs. Pfannenstiel found 33 per cent of cures in sarcoma of the ovary, a better prognosis than that obtained in carcinoma. Even bilateral tumors, if not metastatic, are curable.

The hard tumors require removal of the growth only, while if soft, supravaginal hysterectomy with bilateral oophorectomy is advised.

Dermoid cysts, 5 to 25 per cent of all ovarian tumors, are usually unilateral; Kelly found only one bilateral in 87 cases, though in 15 per cent of Gebhard's cases, both ovaries were the seat of dermoid growths. At times multiple dermoids are encountered in a single ovary. We look upon them as innocent cysts, but they are frequently subject to torsion, infection and rupture. The latter condition, because of the presence of an enzyme in the contents, gives rise to irritative peritonitis which is fatal. Malignant changes in dermoids are not infrequently reported, Weiner in 60 cases found 3 carcinomata, 5 per cent. The form is a squamous cell with pearl formation, arising from the plug.

The treatment of dermoids is removal of the tumor, leaving the other ovary. When malignancy is absent all are cured.

No hard and fast line can be drawn between dermoids and the solid growths (though polycystic), though in solid teratomata the semblance of arrangement and tendency to form organs or organ complexes is lost and a boundless proliferation of embryonic tissues results; the mesoderm shows particularly an excessive proliferative capacity. The authenticated cases are rare, there being not many more than sixty. All must be regarded as malignant. The cures in the authentic cases are less than 12 per cent. Several of these had not been observed for more than six months. A radical operation is indicated with small prospect of a cure.

Since Dr. John A. Sampson's important article on ovarian hematomata, or endometrial (Mullerian) cysts in 1922, there has been a great deal of speculation on this type of tumor. They are exceedingly common, and he considers these implantation adenomata one of the main sources of ovarian cysts and of carcinoma. These tumors have their origin from the extension of tubal or uterine epithelium through the fallopian tubes, where implanted in the ovary or in the pelvic peritoneum they may show marked invasive power, though usually this characteristic is slight.

Sampson states that the operative treat-

ment is determined by many factors, such as the pathological condition present, the age of the patient, her desire for conservative surgery, the result of operative treatment of similar conditions, and especially the natural course of the disease when no operation is performed.

Hematomata of the ovary may be self limited; at the time of menstruation bleeding occurs in the implant, blood accumulates, and they may burst and disseminate the growth. The epithelium may be destroyed or continue to live. These tumors react to pregnancy with the formation of decidual cells and it is the rule, though Sampson states there may be exceptions, that with the cessation of ovarian function by menopause or operation, the adenomata not only cease to grow but actually atrophy.

He states, too, that only the end results in a large series of cases will show whether or not conservative surgery is justifiable. In the young, one ovary may be resected or removed, or both resected; if there are extensive pelvic adenomata, a radical operation would be indicated, in which case adenomata left in the pelvis would cease to grow. He considers ovarian conservatism a rather dangerous experiment.

It is practically agreed that all ovarian tumors diagnosed during pregnancy or the puerperium should be removed. Williams says that serious trouble of one kind or another occurs in at least one-fourth of those present during labor and the puerperium.

Non-interference during pregnancy and the puerperium carries a mortality of 21 to 39.2 per cent with over one-half of the infants lost. Today, efficient surgery has reduced the mortality from 5 to 6 per cent (Marshall, Puech).

Without removal, abortion results in from 14 to 20 per cent (Graefe); this accident is estimated at from 16 to 19 per cent (Puech, Heil) from operation.

The time of operation is undoubtedly a factor. Interruption of pregnancy results more frequently in the second than during the first half of pregnancy. It is also advisable to wait until after the first month or sixth week of gestation, for during the

first few weeks at least, the life and growth of the ovum are dependent upon the presence of the corpus luteum which may be removed with the tumor. Frank tells us that after the first few weeks the placenta assumes this function. During the last month of pregnancy, unless there are untoward results, it is preferable to wait until term, as the fresh abdominal cicatrix is ill adapted to the strain of labor.

Lea states that 50 per cent of tumors of the ovary present during the puerperium give rise to grave symptoms and though delivery is accomplished, the tumor should be removed by laparotomy because of probable injury to the cyst, or torsion of the pedicle; this last complication is common following delivery.

DISCUSSION

Dr. Philip Hillkowitz, Denver: I think we are greatly indebted to Dr. Ingraham for calling our attention to the ovary which is an organ frequently encountered in surgical practice, and the question as to whether it should be removed or not has to be determined by the surgeon at the time of operation. A knowledge, therefore, of the pathology is of great importance. I am particularly interested in that part of the pathology of the ovary that Dr. Ingraham touched upon in relation to cysts. He spoke of the early cystic ovary, that it was originally termed the chronic. The term "chronic" is gradually being deleted from pathological literature. We still use the term "chronic tonsilitis," we use the term "chronic enteritis", and we use a great deal more the term "chronic appendicitis." I am glad at the present time that the standardization movement in hospitals is bringing the pathologists and surgeons together more and more, and that there is better coordination and more frequent consultations between the two as to the nomenclature of terms. With pathologists, the term "chronic appendix", or "chronic tonsilitis," has often been a great strain on our conscience. According to the physiological features, it does not seem to apply, although the clinician may have sufficient justification to call it "chronic." The same thing is true with reference to cystic ovaries, that a word of caution is to be given. Occasionally an ovary will arrive from the operating room into the laboratory in which we see only the normal physiological end, and it will be termed off-hand "cystic ovary." This word "cystic ovary" is subject to a great deal of abuse, and I think we are greatly indebted to Dr. Ingraham for bringing out the pathology of these things in as clear a manner as he has done.

Dr. Cuthbert Powell, Denver: If Dr. Ingraham had done nothing else this morning than emphasize the necessity of making a diagnosis at the time of operation, he has done a wonderful good. It is absolutely necessary in pelvic surgery, surgery of the ovaries, that we know what the condition of that ovary is. Boiled down, surgery of the ovary may be divided into two parts, conservative surgery and radical surgery. There is absolutely no question but that certain diseases of the

ovary require radical operation. There is also no question but that other diseases of the ovary should be treated conservatively. There is no argument about malignant diseases of the ovary. There is, and may be, in the minds of some, an argument concerning the conservative treatment or the radical treatment of the non-malignant ovary. Dr. Draper started his discussion this morning with a little diagram headed "Heredity and Environment." If we take the non-malignant changes in the ovary, heredity and environment play a very important factor in the surgery of this ovary. As Dr. Ingraham stated, in the young, the ovary may be left, parts of the ovary may be left, in non-malignant diseases. We are too prone to treat the disease and to overlook the patient. The worried condition, the environment of the patient, is a very decided factor in the surgery of the ovary. A young woman who has gonorrhoeal inflammation of the pelvic organs may have conservative surgery done. On the other hand, a young woman with a gonorrhoeal inflammatory condition, whose heredity and environment is such that she will be a menace to the community, should possibly not have conservative surgery done. The woman who is desirous of bearing children, should be allowed to bear children. A woman who is a prostitute, and who is infecting men and indirectly other women, in my opinion, should not be subjected to conservative surgery. The mental effect on the patient is one which must be considered. We all know that practically all patients coming to us with pelvic diseases will say, "Now, Doctor, I don't want to lose my ovaries." I wish Dr. Ingraham had brought out a little more plainly this particular point in pelvic surgery. If we will emphasize to our patients the fact that we do not remove ovaries, that we remove the remains of the ovaries, we would do well. The malignant ovary is no longer an ovary; it is a diseased condition. If we assure our patient that the ovary is not removed, but only the remains of the ovary, whether it be malignant or due to inflammatory degeneration, the immediate effect upon that patient is far better than if we told her we were taking out her ovaries. Dr. Ingraham spoke of pelvic tuberculosis as being secondary to tuberculous infections in other parts of the body. I think we are all pretty settled on the fact that pregnancy and tuberculosis do not go together. Removal of the tubes in pelvic tuberculosis does not sterilize the patient in every instance. Dr. Coffey of Portland reported a case of a doctor's wife who had pelvic tuberculosis in which he removed both tubes into the uterine cornua and six months later that doctor came to see him and said, "Is it possible for my wife to become pregnant, both tubes having been removed down to the uterine cornu? I want to bring my wife down to have you examine her," and he brought his wife down and she was pregnant. Removal of the tube and tuberculosis of the tubes, does not prevent pregnancy, in every instance.

Dr. T. A. Stoddard, Pueblo: This is an interesting subject. It is not very many years ago that pelvic surgery was in its infancy, and the ovaries were accused of being the cause of all pelvic pain, and abdomens were opened and ovaries were removed willy-nilly without regard to the pathology for the best interests of the patient. Dr. Powell speaks of the patient coming and saying, "Doctor, I don't want to lose my ovaries." Who of you men in going to a physician with some trouble with the testicles would not say, "Doctor, I don't want to lose my tes-

ticles." Of course, you don't. Of course, the woman don't want to lose her ovaries, and today I believe the pendulum has swung back and we are on safer grounds than we were thirty or forty years ago, and the patients are safer. The pathology of the ovaries does not always necessitate the removal of the ovary at all. A true cystoma of the ovary that has not existed long enough or become large enough to cause complete destruction of the ovary, does not necessitate the removal of any ovarian tissue. The cystoma can be removed and all the ovarian tissue can be safely left, without the probability at all of any return of the cystoma, and this should always be done. I do not believe any true ovarian tissue should ever be removed any more than true testicular tissue should be removed. In gonorrhoeal infection of the tubes, the ovaries are not always, perhaps not often, involved in the early stages. Of course, I don't mean to say in the early stages that operative procedure should take place in gonorrhoeal salpingitis, but as long as it is probably necessary in the judgment of the surgeon, the tubes should be removed. I do not believe a gonorrhoeal tube ever becomes healthy. I believe it is always a menace, and in removing a gonorrhoeal tube it should be removed up into the cornu, and the ovary once in a while in a long protracted case of gonorrhoeal salpingitis becomes involved and infected, and in those cases it should be removed, but not otherwise.

Dr. C. E. Tennant, Denver: In the discussion of this paper great stress has been brought upon the tube in the case of gonorrhoeal infection. I want to say I believe it is far better to speak of tubes in the plural rather than the singular. If the tube is involved on one side, both tubes should be removed, as it would save repetition of the operation. In connection with the ovary, I do want to compliment Dr. Ingraham in the way he has brought this out. It has been a revelation in pathology which I had not realized. In many of the multi-cystic ovaries, for years past I have followed the principle of simply bisecting the ovary and turning it inside out, approximating the bisected peritoneal edges with cat-gut after inverting the ovary. In other words I follow the Andrews bottle operation for hydrocele, this lesion being perhaps analogous with hydrocele. It has been many years in which I have been following this procedure, and my results, in cases where I have been forced later to operate for other lesions, have been quite satisfactory. I mean I have found no post operative peritoneal adhesions about the ovary. Referring to the matter of ovarian pain, the clinical side in these cases becomes extremely interesting. We know, when pain occurs with these ovaries, we can usually attribute it to early distension, with pressure on its capsule. We must also bear in mind the acute pain ushered in with sudden pedicle twists or torsions.

Dr. Ingraham (closing): There is very little to add; but one fundamental point I want to bring out, and that is, to determine what must be done to an ovary, you must have the proper recognition of the pathology. And just to answer Dr. Stoddard, when he said he could resect the majority of tumors, I think that illustrates the point. For instance, with a pseudo-mucinous cyst adenoma, you cannot resect the ovary although you are removing what is apparently just a small cystic tumor, it will return and so with other types, we must know what we are dealing with before we can decide what is to be done in any particular instance.

SUBPHRENIC ABSCESS

WILLIAM SENGER, M.D.,
PUEBLO, COLO.

Subphrenic abscess was first described by Barlow in 1845; then, apparently independently, by Hilton Fagge in 1873. The first operation for the condition was performed by Von Volkmann in 1879. But it remained for Leyden (1886) to give a clinical picture of subphrenic abscess and to differentiate it from diseases of the thorax. Since that time, there has, of course, been rapid progress in the study and treatment.

It has often been said that this kind of abscess is becoming more rare. Perhaps so, since abdominal diagnosis and treatment are instituted earlier and consequently abdominal infection is not so common as heretofore. Nevertheless, today the condition must be regarded as a serious complication, baffling in clinical signs, difficult in management and overlooked with remarkable regularity.

It is not surprising that this is so for a subphrenic abscess presents several peculiar features.

1. It is very rarely primary.
2. It is usually secondary to an intra-abdominal infection. Especially may it follow a ruptured appendix, perforated gastric and duodenal ulcers, gall bladder and liver infections.
3. Sometimes it occurs as an expression of general sepsis.
4. The pus may be in several subphrenic pockets, one or more often overlooked.
5. Anatomical peculiarities are such that the condition may be extremely difficult to diagnose and when correctly diagnosed, even more difficult accurately to locate the pus.

The anatomy has been frequently described. Names of the various parts are legion and the descriptions hard to grasp without careful dissection.

Nather has perhaps described this region most accurately, although he deviates largely from others. He regards the subphrenic

space as bounded by the diaphragm above, the transverse colon and transverse mesocolon below. The liver divides this into an upper and lower space; the falciform ligament into right and left. The final divisions are three right and four left. These irregular, extra peritoneal or intra-peritoneal areas are largely overlapped by the liver and thus the most painstaking diagnostic methods are often clouded.

If a subphrenic abscess is to form, the pus will take the path of least resistance—whether due to gravity, or absorption through the lymphatics or blood stream. Its localization is determined by the direction of flow and the formation of adhesions. In other words, the original cause of this complication does not determine the position of the subsequent abscess.

The surgeon should consider the possibility of such an abscess in every abdominal section where the patient is not doing reasonably well. This suspicion should become deeper if the majority of the following symptoms develop without local cause: chills, vomiting, rapid pulse, septic temperature, increasing hyperleucocytosis, slight but persisting hacking cough, pain in the lower costal regions.

Physical examination may show nothing at first, but persistence on the part of the examiner usually reveals the cause. Sometimes an oedematous, bulging, painful spot may be located over the involved area. Often pleuritic friction rubs are present. If gas is present, there may be found three zones of resonance—upper, normal lung; middle, gas, tympanitic; lower, liver and abscess dulness.

The picture is often obscured by an associated plenisy with effusion, an empyema, pyopneumothorax, a pneumonia or liver abscess. Differentiation must be made from these, as well as their recognition, if they themselves are complications of the complication.

Great reliance can now be placed on painstaking and, if necessary, repeated x-ray ex-

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aminations. Changes in the contour, position and mobility of the diaphragm are most important. Whenever possible, fluoroscopic examinations, as well as films, should be made in the erect or sitting position. Usually the acutely ill patient must be examined prone. Then the examinations should be made in the postero-anterior and lateral positions.

The temptation of promiscuous needling is great; but the dangers of spreading the infection rarely compensate the risk. If one feels that needling is unavoidable, it should be done under guidance of the fluoroscope.

To bring out the various points, I should like to report six cases which came under my care recently. Special stress will be laid on the series of x-ray films here shown and which seem to clinch the diagnosis in every case.

Case 1. This illustrates how a subphrenic abscess may develop with amazing rapidity after long latency. Male, age 22. Operated Dec. 19, 1924, for ruptured, gangrenous appendix. There was no elevation of temperature or other bad symptoms six days subsequent to this operation. Discharged apparently completely recovered 22 days later. Five weeks after discharge from hospital, the patient returned, complaining of weakness, chills, pain in right suprascapular region. Cough began 5 days ago, increasing in severity until now it is almost constant with much sputum.

Physical examination revealed characteristic signs of right pneumothorax with fluid. Some tenderness over 9th, 10th and 11th right ribs. No abdominal pain nor rigidity. Dyspnoea was marked. Appendicinal wound healed. Leucocytes 31,000, 90 per cent neutrophils; Hb. 56 per cent; hemoglobin red blood cells 4,500,000. Urine and Wassermann negative. Temperature 101.4, pulse 104, respirations 30. Blood pressure 104-54. The x-ray confirmed our suspicions, showing gas and fluid in the pleural cavity and arched immobile diaphragm.

As this was one of those few cases in which needling could do little harm, the diagnosis was confirmed. The drainage of both pleural and subdiaphragmatic space was made through the same incision by resecting the 9th rib. Pus from both cavities showed streptococci, apparently identical with the germ obtained from the sputum. The patient, therefore, now drained from the right pleural cavity, from the subphrenic space and from a right bronchus. The patient died six months later in death from exhaustion. Repeated examinations failed to show other foci of infection.

Case 2. This illustrates a badly neglected infection in the beginning and subsequent development of subphrenic abscess. Male, age 17. This boy was first seen Feb. 7, 1925. He gave a history of typical appendicinal abscess covering a period of 18 days. His spine had been treated for "locked bowel" all this time. On examination he showed a mass occupying nearly the whole of the pelvis. He was almost moribund and nothing was done but the institution of drainage. A fecal fistula

developed two days later. The patient progressed fairly well until March fourteenth. Then he had a severe chill, followed by a septic temperature and slight hacking cough. Leucocytes 15,000. There was no abdominal change and no complaint of pain. Physical examination showed nothing until the x-ray was used. Two days after apparent onset of the complication, the fluoroscopic examination of the chest showed "right diaphragm higher than normal and immovable upon forced respiration". The film showed the same conditions with small areas of cloudiness at base of right lung and costophrenic angle. X-Ray Diagnosis—"Subphrenic abscess with possible infection in lower lobe of lung." Leucocytes were now 28,000. Still no complaint of thoracic or abdominal pain. In this case I followed the method of Nather and Ochsner in locating pus. These illustrations of their article show the method. Only one suprahepatic abscess was found. The results were excellent. The patient was discharged from treatment 39 days after this operation.

Case 3. This shows that even the child is not immune. Male, age 5, was treated 12 days with home remedies for colic. When he first entered the hospital he had a very definite appendicinal abscess, well localized. This was drained and the stump of the appendix was removed Dec. 23, 1924. Did well until Jan. 10, 1925, when he awoke crying and complaining of pain in the abdomen. Slight rigidity in upper abdomen only could be found at first. He rapidly became septic. Leucocytes rose from 10,000 to 41,000 in 2 days. On Jan. 12th the first physical signs became evident. Chest showed moderate dullness, lower fourth right chest posteriorly. No flatness, no change in breath sounds. X-Ray gave slight suggestion of high diaphragm. On the next day there was "definite dullness, lower quarter right chest posteriorly within axillary lines—breath sounds absent. X-Ray shows apparently a subphrenic abscess". As the case had developed so recently, I felt no hesitation in resecting the 10th rib, pushing back the pleura and entering the pus cavity at once. About four ounces of colon bacillus-laden pus was evacuated. Complete recovery 27 days later.

Case 4. Shows how often a subphrenic abscess may be mistaken for other conditions. Male, age 27, operated elsewhere for gangrenous appendix, Jan. 30, 1925. Wound re-opened two weeks afterwards, which drained for 8 weeks. On April the 18th complained of sudden sharp pain along 9th and 10th right ribs. Operated April 30th, when incision was made over the gall bladder. Nothing was found. May 9th, the eleventh right rib was partially resected and pus encountered. Discharged from treatment May 29th. In about two weeks temperature began again and has been present ever since. Came first to me July 8th. X-Ray showed the partly resected eleventh rib. There is an arched diaphragm and smeared costophrenic angle. Physical signs—Patient emaciated; hemoglobin 47 per cent; red blood cells 3,800,000, whites 22,000—89 per cent neutrophils. Urine and Wassermann negative. Coarse rales over both chests. Tenderness along 10th rib anteriorly—otherwise negative. The suspicion was that he had had two subphrenic abscesses, a subhepatic abscess which had been drained, and also a second abscess between the lung and liver. The method of Nather was again followed and pus was evacuated from the second abscess. Recovery was slow but steady.

Case 5. Shows the difficulties of diagnosis in presence of other diseases. Female, age 23, admitted Nov. 18, 1924, with ruptured appendix. She was intensely nervous and hard to control. Wound healing was rather sluggishly with considerable slough of fascia. Nov. 30th she developed a streptococcus sore throat and was much prostrated. Dec. 3 signs of consolidation of both lungs appeared, especially the right base, apparently broncho-pneumonia both lungs. Her prostration seemed to increase when she should have improved. Therefore, Dec. 21, X-Ray of chest was made and showed arched, immovable right diaphragm. We felt that a subdiaphragmatic abscess had developed. In the presence of the recent throat condition and of the present broncho-pneumonia, operation, we felt, should be deferred, if possible. The next morning the patient seemed brighter. Early in the afternoon she had an unusually severe coughing paroxysm. Pus and blood literally poured out of her mouth and nose. She drowned in her own secretions in a few moments. Autopsy showed that a large subphrenic abscess had ruptured into the right lung. The spots in the lungs proved to be multiple abscesses with some scattered pneumonic spots. Smears from subphrenic abscess as well as lungs showed long chained streptococci. We never have decided whether the subphrenic abscess originated from the appendix or was the expression of general sepsis beginning in the throat. The latter seems more probable.

Case 6. Shows the reaction of a child to a most severe infection. Female, age 15. Admitted March 22, 1925, and operated for ruptured appendix of eight days' standing. Temperature never returned to normal subsequent to operation. March 29th, some diminution of breathing appeared over right base posteriorly. March 30th, dulness in base right lung, posteriorly, extending into axilla. Practically no breath sounds in these areas. Persistent hacking cough but no sputum. X-Ray suggests subphrenic abscess. April 2, signs persist and were intensified. There was bulging anteriorly in the 10th interspace, marked pain in lower right chest and upper abdomen, with considerable rigidity. Leucocytes increased in one day from 17,000 to 22,000—neutrophils from 82 per cent to 87 per cent. Definite diagnosis of subphrenic abscess was made by X-Ray. April 3 a subphrenic abscess was opened as described by Lockwood. This seems to be the preferable operation when one is not sure of the position of the abscess. In the present case the drainage was profuse for weeks. The cough persisted and finally contained pus. All signs suggested that, in spite of drainage, there was a rupture of the abscess into a bronchus, without involving the pleural cavity. The general condition of the patient became alarming—the hemoglobin sinking to 28 per cent with all the signs of intense toxæmia. The patient gradually but surely began to improve as soon as she was moved out of doors. She finally was discharged recovered, four and a half months later.

Remarks

In these case histories, much has necessarily been left unsaid. A few points may be summarized.

1. The differential diagnosis from pneumonia, pleuritic fluid and empyema is most difficult. We must rely largely on history

and X-Ray findings. In an acute case, fluid in the chest usually indicates a pre-existing pulmonary infection. Dyspnoea and cyanosis are common with fluid but very rare in subphrenic abscess. The X-Ray shows the diaphragm in effusion as never so sharply defined and never so arched. But it is well to remember that the costophrenic angle may be hazy in subphrenic abscess from oedema of the pleura and diaphragm, even though no pus or fluid exists above the diaphragm.

2. It must be borne in mind that X-Ray examinations are subject to error in interpretation. If one is careless, the film may show the diaphragm with a high arch—the picture being taken at the end of a prolonged expiration. The fluoroscope is therefore invaluable in determining the excursion and mobility of the diaphragm.

3. In all the films shown you, the abscess was on the right side, and all the cases reported were complicating appendicitis. It is unnecessary to explain that left subphrenic abscess may occur and conclusions may be drawn in the same manner as described for the right side.

4. Early diagnosis can be made, if constantly borne in mind, and is essential to prevent even more formidable trouble.

And once again permit me to emphasize that diagnosis must be based on history, physical examination and X-Ray. To do this requires usually the combined work of roentgenologist, pathologist, internist and surgeon.

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DISCUSSION

Dr. J. N. Hall, Denver: I think that is a very timely and excellent paper. There are some of the broader aspects in subphrenic abscess that I think we ought to call attention to. Let us take three or four suppositious cases: Take a city like New York, if you found in looking over their annual reports that subphrenic abscess was rare, it would be a compliment to two things, to the diagnostic skill of the medical men and the operative skill of the surgical men. Suppose you take a city like Denver, Pueblo or Salt Lake City, and that you find a high subphrenic abscess list, it does not necessarily reflect anything on that city because you do not have the control as one might in a more centered community over the occurrence of it. If you notice the cases quoted, you find practically every one was neglected before he got into the doctor's hands. Those cases come from neglect of something in the abdomen that ought to have been taken care of a week or two weeks before. If these cases come into the hands of a good diagnostician early and are taken care of early, you do not have subphrenic abscess to any great degree. A good many cases I have seen have been men living in isolated communities, or communities surrounded by dense ignorance, where nothing was done in the beginning. Take a ranchman 40 miles from the doctor, and I have been out many times to see such a man, who has some trouble in his abdomen; he doesn't think it amounts to very much; he thinks he has a belly ache, and doesn't propose to give up his work. The appendix ruptures, and he finally sends for a doctor, and already has a well defined subphrenic abscess. The time to treat it was not after it was formed; the time to take care of that was before it was formed. We are making a good deal of headway in that. We rarely see subphrenic abscess

from ulcer. You notice how all these cases came from appendicitis. One of mine out of 16 cases I gathered some 12 or 15 years ago, came from ulcer, and 11 from the appendix, and practically all from retrocecal appendices. The kind coming from above the diaphragm have almost passed out of existence. We scarcely ever see them. What we must really look out for in these cases is the retrocecal appendix as the cause of subphrenic abscess. The man who says we ought not to follow up chronic appendicitis sharply is carrying a mighty responsibility as regards the development later of subphrenic abscess. One reason for getting rid of an appendix early is not simply to get the man out of his immediate trouble, but to avoid the troubles that are to come later, if an attack comes later. If you know of anything more distressing than to see a poor devil with a retrocecal appendix that has been neglected, with his empyema developing and finally coughing colon bacillus pus through his bronchial tubes, I don't know where you are going to look for it.

I appreciate the doctor's paper very much.

Dr. W. W. Grant, Denver: As I deal with this subject in my paper tomorrow, I will not discuss some of the features, but I will call attention especially to the French surgeon who many years ago called attention to the retrocecal cases of appendicitis as being the principal cause of subphrenic abscess. My own experience justifies that observation. Ordinarily, suppurative appendicitis has no tendency to follow up behind the colon unless the appendix is situated posteriorly. The pus goes the way of least resistance.

I want to allude to the differential diagnosis which the Doctor merely mentions at the close of his paper, as to the use of the X-Ray. If experience has taught me anything, it has taught that the clinical history of these cases is worth infinitely more as a diagnostic matter of importance than any X-Ray finding, and if one studies the clinical history of these cases, he will not need to send his patients to the laboratory to find where the shadow may be. The clinical history tells the story.

The explanation why we have so many poor diagnosticians today, is that they are looking upon instruments of scientific precision to tell them what common observation and experience ought to teach them as to the cause of disease. And that is true in all cases of abdominal surgery today. Men do not seem to think it important to study the clinical history of cases any more, and in both the medical and surgical profession we find this want of use of one's observation and experience in the investigation of diseased phenomena at the bedside. If you do that, you ought to know that it is not necessary to go into so many details to tell whether a patient is suffering from acute appendicitis.

Dr. R. H. Finney, Pueblo: I did not think I would say anything; but these cases that Dr. Senger has reported have been quite intimately associated with me, and it has happened that they have come under our observation in the last few months. Every case that comes into the house now we suspect a subphrenic abscess. That is pretty nearly the truth. I want to say this, that 99 per cent of the subphrenic abscesses, as Dr. Hall has said, are the result of neglect; I don't mean to say neglect necessarily from the doctor's standpoint, but from the standpoint of the patient. I think practically every one of these cases

were long standing cases of abdominal sepsis. As Dr. Hall has said, and what I want to say, is that we should not hesitate to take out these appendices that are chronic. The pendulum swung for a long while in the direction of taking out too many appendices but I don't believe it ever swung too far, and the same way with the tonsils. A great many of us have said, "We are taking out tonsils unnecessarily." I don't believe it for a minute. I have had mine taken out, not that I had any trouble; and I would have my appendix taken out tomorrow if I thought there were any trouble there, because in the General Hospital we see the results of these conditions. Dr. Hall has expressed the whole thing. It is not the fault of the surgeon, because when a patient gets an abdomen full of pus we cannot stop the subphrenic abscess. As to diagnosis from a clinical standpoint, I believe we should do more bedside diagnoses. There is no harm in using the needle. Use it as many times as you have to, and if you have to use it two or three times as an aid to establish diagnosis, do so. This series was of interest to us, Dr. Senger and I, because they were running along so closely together, and they were so recent, and all of them were due to neglect of abdominal infection.

Dr. T. A. Stoddard, Pueblo: Dr. Senger says that we rarely have a primary subphrenic abscess. I think I could put it a little stronger than that and say that we never have a primary subphrenic abscess. There must be some previous cause for the abscess, and almost invariably it is due either to a mistaken diagnosis or no diagnosis at all. In many cases, it is neglect; they do not come to the doctor in time, not until they have a ruptured appendix. Today we are somewhat between the "Devil and the Deep Blue Sea." The pathologists—I hope Dr. Hillkowitz is here and others like Dr. Hillkowitz—believe that there is no such thing as chronic inflammation of the appendix; and, when we are writing out our diagnosis in standardized hospitals, we are not permitted to put down as a diagnosis "chronic appendicitis", or "chronic inflammation of the appendix." Now, I would like to say, just what Dr. Hall says, although I will say it in this way: One time I was walking along the street in Halifax and there was a great big Indian carrying a big load of baskets on his back and a little pappoose was following him. The big Indian was calling out "Baskets for sale", and the little fellow was saying, "Me too". I wanted to say that in regard to what Dr. Hall has said, "Me too".

Dr. Senger (in closing): I do not want anybody to think that we cannot diagnose subphrenic abscess without an X-ray plate any more than I think you cannot diagnose typhoid fever without a Widal reaction; but who would diagnose typhoid fever without the Widal if the latter be available. X-Ray helps in diagnosis of subphrenic abscess, more than any one thing. In looking up the literature, the remark is made by almost everyone writing on the subject that subphrenic abscess is missed with remarkable regularity. Therefore, let us have the X-Ray and let us have anything that will aid in diagnosing this oftentimes obscure condition. Another feature about every one of these cases (and I don't know whether I emphasized that) is that they were neglected cases of appendicitis. All cases of appendicitis, if you can get them early enough, will probably escape subphrenic abscess. These cases all occurred, unfortunately, during

a very few months of the past winter and spring. Prior to this, I had not recognized a subphrenic abscess for four years, and prior to that I do not think we had one for ten. Maybe I missed some. Maybe there was something peculiar about the infection this year, predisposing to this complication. I know that the proper thing to do is to diagnose them early, if possible. If you don't, you may have the same result as shown in the first picture where this boy ruptured his subphrenic abscess into his pleural cavity, and then into the lung. My plea, therefore, is for early diagnosis, and X-ray will often clear up a doubtful case far sooner than any other means now at our command.

AN OBSOLETE REMEDY

"I have brought a great deal of relief to a number of persons who had nearly all their teeth carious and who as a consequence were often tormented by pains and aches and mouth troubles, by means of the following remedy. It consists in rinsing out the mouth every morning and also evening before going to bed with some spoonfuls of their own urine just after it has been passed, provided, of course that one is not ailing in any other way than the teeth. The urine should be retained in the mouth for some time and the remedy must be used for a number of days. This remedy is of great service, but it is true that it is not very agreeable, except inasmuch as it brings distinct relief. Some of those for whom I have prescribed this remedy and who have made use of it have assured me that after its employment they were freed from other troubles of various kinds throughout the body to which they had been subject. Most people have some little trouble at the beginning to accustom themselves to it, but what will one not do for relief and for health."—Fauchard, 1723. (Quoted by James J. Walsh in "Cures.")

THE SELECTION OF A PHYSICIAN

The selection of a physician for an operation or as a family doctor, is usually made with some care. We consult those who have employed physicians and are governed largely by their recommendations. But having selected a physician, we follow his advice. We trust him even to the extent of submitting to operations that may have serious results.

The point is, we trust **THE MAN WHO KNOWS.**

Now, doctor, the institutions and the firms advertised in this journal were carefully investigated before their announcements were printed here. The medicinal products were submitted to laboratory tests before they were accepted by the Council on Pharmacy and Chemistry.

On the same principle that patients trust you about matters with which you are informed, so your publishers urge you to trust their judgment and buy goods from the advertisers who are admitted to these pages. Other considerations being equal, you should give your advertisers **PREFERENCE** because you know they are believed to be trustworthy. Don't speculate or experiment. Trust the **APPROVED** firms and goods.—Cooperative Medical Advertising Bureau.

Delicate monkeys at the London zoo are given special quarters where they have abundant supplies of fresh air, radiant heat and ultra-violet rays from quartz electric lamps.

SYSTOLE

I do then with my friends as I do with my books. I would have them where I can find them, but I seldom use them.—Emerson.

What we have inherited from our fathers and mothers is not all that “walks in us.” There are all sorts of dead ideas and lifeless old beliefs. They have no tangibility but they haunt us all the same and we cannot get rid of them.—Ibsen.

The highest of characters in my estimation is his who is as ready to pardon the moral errors of mankind as if he were every day guilty of some himself, and at the same time as cautious of committing a fault as if he never forgave one.—Pliny.

Manners must adorn knowledge, and smooth its way through the world. Like a great rough diamond, it may do very well in a closet by way of curiosity, and also for its intrinsic value; but it will never be worn, nor shine, if it is not polished.—Lord Chesterfield.

If we work upon marble it will perish. If we work upon brass time will efface it. If we rear temples they will crumble into dust. But if we work upon men's immortal minds, if we imbue them with high principles, with the just fear of God and love of their fellow men, we engrave upon those tablets something which no time can efface and which will brighten and brighten to all eternity.—Daniel Webster.

Human beings are the most interesting objects on earth, and to know themselves and get along with one another is their most important business. That business drags because they do not know where they come from, how they get here, what they bring with them, what they do with it, and what they could do if they stopped quarreling among themselves and used their brains to solve their common problems.—Dorsey.

DIASTOLE

“Some friend give you that cigar?” “I don't know yet.”

Ode to a skunk. One scent. Ode to a cootie. Adam had 'em.

What did the morons stick on their windshields before they got bathing girls?

“There's a fly in my coffee.” “Never mind,” said the waitress, “he won't drink much.”

“There's one thing no one will ever do to me except over my dead body.” “Yes, what?” “A post mortem.”

Mother: “Willie, if you had a big apple and a small one and your brother asked for one, which would you give him?” Willy: “Which brother, the big one or the little one?”

“What's that thing on your sleeve?” “That's a lady-bug.” (After close inspection) “Maybe so, take your word for it, your eyes are better than mine.”

“Mother,” cried little Mary, as she rushed into the farm house where they were visiting, “Johnny wants the listerine. He's just caught the cutest little black and white animal, and he thinks it's got halitosis.”

Sherlock Holmes being admitted to heaven on probation, his task was to find Adam and Eve. He soon succeeded and confided that his method was simple, that they were the only ones there without umbilicues or umbilici (which)?

John: “What did you get for Christmas?”

Henry: “Do you know that new sport model Packard that is just out?”

John: “Yes.”

Henry: “Well, I got neckties and socks.”

NEWS NOTES

Dr. Harvey J. Bradfield and wife are leaving Sheridan, December 15, for an overland trip to southern Texas and Mexico. They expect to make their headquarters at San Antonio. Miss Margaret Bradfield, an accomplished linguist, will join them for Christmas vacation. They will return about the first of March.

Dr. V. Gage and wife of Worland, Wyo., are, we understand, about to move to Denver. The doctor has been honored in the past with the presidency of the Wyoming State Medical Society, and it is with deep regret that Wyoming loses another of its valuable men to Colorado. To Dr. Gage properly belongs the credit of early pioneer work in the treatment of asthma, and the effects of proteins on such cases.

Dr. E. G. Dennison and wife recently returned from a visit to their son Bruce who is in a military academy in Missouri. Afterwards they spent considerable time in Ohio. The doctor is a great football fan and enjoyed witnessing notable games, such as the Ohio-Illinois and Nebraska-Notre Dame games. Dr. Dennison reports his son as doing nicely in school.

This fall Dr. Fred Horton of Newcastle, dean of the medical profession in the northern part of Wyoming, who came to Wyoming with the Burlington railroad, and who has been in practice since '81 in Newcastle, had an accident that nearly cost his life.

Dr. and Mrs. Horton were driving from Newcastle on the highway, when they failed to make a necessary detour and, consequently, plunged over a twelve-foot embankment. Both received severe injuries. When the doctor and his wife finally arrived in Upton, Dr. Reed gave them most efficient care.

Dr. Horton has just left for St. Louis. Mrs. Horton will join him soon. They will spend their winter in California. Dr. Lawrence C. Meredith of Denver, Colo., will have charge of his practice while he is away.

Dr. N. J. Nolan and Dr. Allen McLellan, both of Casper, attended the Utah State Medical meeting at Salt Lake. They report a most enjoyable trip.

Dr. C. H. Platz, president of the Wyoming State Medical Society, and Dr. W. W. Yates, both of Casper, attended the mid-summer meeting of the Northwestern Wyoming Medical Society held in Worland.

Dr. Platz read a paper entitled, "Meningeal Hemorrhage in the Newborn." Dr. Yates read a paper entitled, "Infections of the Accessory Sinuses of the Nose."

Dr. J. L. Mortimer has sufficiently recovered in health to resume his practice at his home office, 1255 Washington street.

Dr. Ira J. Clark has resumed practice at Fort Morgan. He was formerly associated with Dr. Miel of Denver.

Dr. and Mrs. Maurice Katzman are the parents of a son, born November 29th.

Dr. Hiram B. Mann has resumed his practice at his office in the Imperial Building.

Dr. Donald Hunter O'Rourke has resigned from the United States navy and is now associated with Dr. Edward Jackson and Dr. William C. Finnoff, 217 Imperial Building.

Drs. Thomas A. Stoddard, E. D. Burkhard and John L. Schwer recently gave an interesting program for the Denver County Medical Society.

Dr. William Flockton Brownell has returned to his practice at Fort Collins after an absence of five months post graduate work at Vienna and Paris. He is specializing in ophthalmology and otolaryngology.

Dr. W. J. Bingham, formerly of Denver, writes a long and interesting letter concerning his work in Puebla, Mexico. He ends his communication as follows: "The future of Mexico depends upon the wise adjustment of numerous problems which now confront this republic. So far President Calles has succeeded admirably. He has no easy task. All eyes are upon him at this critical time in Mexico's development."

SECRETARIES' CONFERENCE

The Wyoming secretary attended the annual conference of the secretaries of the constituent State Medical Associations at the headquarters building of the American Medical Association at Chicago, November 20 and 21.

Most of the states were represented by their secretaries or editors of the state journals. In many cases secretaries and editors both attended.

Addresses by William D. Haggard, president, and by Wendell C. Philips, president-elect of the American Medical Association, together with five papers read by secretaries and editors with the free discussion made a most helpful and enjoyable meeting.

It's a wonderful inspiration to the men who go and rub shoulder to shoulder with the live wires all over the United States.

Friday evening and Saturday morning a conference on "Periodic examination of apparently healthy persons" was held and the papers and addresses there given will no doubt be printed in the Journal or Bulletin of the American Medical Association. Practical demonstrations of the methods used in such examinations by some of the leading men engaged in this new work were given.

This year the Wyoming Society expects to supply to each of its members a copy of the "Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons," prepared and put out by the American Medical Association. This is a 55-page reprint of the original report presented to the house of delegates by a special committee and contains the sample examination blank as recommended.

To be a better qualified doctor than you were yesterday is the true ideal, and unless the profession raises to the occasion and equips itself, then life extension companies, etc., will receive the support that should be given to the members of the medical profession. If some one else spills the beans, don't cry; this is your chance, make good or quit.

MEDICAL MUSEUM

As a result of notices published in this column in previous numbers of Colorado Medicine, the Medical School is receiving from time to time specimens of various sorts. Much more material, however, is desired, and no doubt is available.

Inquiries may be directed to E. R. Mugrage, 4200 E. 9th Ave., Denver, or other members of the faculty. Any specimens sent will be duly acknowledged and credit given the donor.

MEDICAL SOCIETIES

DELTA COUNTY

The regular monthly meeting of the Delta County Medical Society was held in Delta, Friday, November 27th. Dinner was served at the Delta House, at which the members' wives and daughters were guests.

Present at the scientific meeting were Dr. Hick, presiding; Drs. Meyers, Day, Copeland, McArthur, Bolton, McClanahan, Lewis, Cleland, Miller, Bast and Smith; Dr. Isam Burgin, visitor.

Papers for the session were as follows: Dr. Hick, "Medical Treatment of Gastric Ulcer;" Dr. McArthur, "Surgery of Gastric Ulcer," with report of ninety cases; Dr. Day, "Roentgenograms and Pathology in Differential Diagnosis of Gastric Ulcer." Discussion was opened by Dr. Cleland, followed by general discussion.

State compensation payments in severe injuries was discussed by Drs. Hick and McArthur. Data of other state compensation laws to be collected by the Society.

Papers for the next meeting: Dr. Lewis on "Influenza," Dr. Smith on "Sinus Infection."

Next meeting is to be at Hotchkiss.

SHERIDAN COUNTY, WYO.

The Sheridan County Medical Society held its regular monthly meeting December 7th in the offices of Dr. E. G. Dennison; Dr. O. L. Veach, president, presided. This was one of the most interesting and best attended meetings of the year. The larger part of the evening was spent in a free discussion of scarlet fever and the individual experiences of the uses of vaccine and antitoxin for this condition. Dr. R. E. Schunk reported four interesting cases of tularemia, all of which were technically connected with skinning and cutting up of rabbits. An interesting point brought out was the fact that these rabbits all came from the northeastern part of Sheridan county, which has been one of the beds of infection for scarlet fever.

The following officers were elected to serve for the coming year:

Dr. R. E. Schunk, President.
Dr. E. G. Dennison, Vice President.
Dr. R. E. Crane, Secretary-Treasurer.
Dr. S. W. Johnson, Censor.

An invitation is extended by the county society to the members of the staff of the U. S. V. Bureau Hospital No. 86 to join the county society.

Adjournment was followed by a Dutch lunch.

COLORADO PSYCHOPATHIC HOSPITAL

The activities of this institution have continued at much the same rate as during the past months. At times the capacity of this hospital have been taxed, but due to the usual type of case the patients do not stay, except for a few days. A summary of the activities and data as given out by the office of the director is as follows:

Number of patients admitted during November	43
Number of patients discharged during November	40
Number of patients in the hospital December 1st	57

The Out-Patients' Clinic in connection with this institution is growing steadily and constantly treating new patients. There was a total attendance during the month of 83 with 55 of these new cases, and of these, 31 or better than half were children. The Social Service follows up the cases after discharge, and 85 visits were made. Besides this there is the need of interviews of a sociologic character with many of the new cases to obtain better understanding of the patient under consideration.

E. R. MUGRAGE.

COLORADO GENERAL HOSPITAL

The activities of this institution have taken on a routine character and outwardly at least everything is running smoothly. The office of the Superintendent has given out the following data to cover activities of the past month of special interest to the medical men of this state:

Patients in the hospital November 1st	66
Patients admitted during the month	123
New born (included in above)	5
Patients died during November	10
Patients discharged during November	108
Patients remaining in hospital December 1st	70
Number of hospital patient days	2,156
Average number hospital patients treated daily	70.2
Number of counties represented	25

The patients received in this institution during the month were divided as follows:

Men	36
Women	49
Children	38

As with the previous months a large percentage of these patients are able to pay part, or in full, for their care.

While a considerable proportion of the state is availing itself of the advantages to be had in the institution and the connected departments, the authorities would like to see more extensive use made of the possibilities available. To further this it is believed that a campaign of education will probably bring the results in the form of publicity. The Extension Division of the University of Colorado has undertaken to carry out such a program, by talks and pictures, in this way visualizing so far as possible this institution to people throughout the state.

The Out-Patient Department continues to play a very active part in the hospital activities. During the month there has been a good attendance most of the various clinics that make up the Department. The following data gives in brief the work accomplished.

Number of new patients for the month	422
Number of old patients	1,839
Total attendance	2,261
Daily average new patients (approximate)	20%
Daily average	88

E. R. MUGRAGE.

THE PUEBLO CLINICAL AND PATHOLOGICAL SOCIETY

The Society met in the Union Depot dining room on November 11th. After dinner the following scientific program was given: Dr. W. E. Buck, official head of the Pueblo Department of Health and Sanitation, discussed throat cultures and referred especially to the persistency of positive cultures in many of the so-called "carriers" and the menace they are to the community, and the necessity of keeping them isolated.

Dr. Buck discussed particularly the frequent failures to obtain positive cultures when the clinical symptoms were positive, giving among other reasons failure properly to take a swab, either because of not getting into the crypts with sufficient vigor, taking swab soon after a strong antiseptic solution had been used in the throat, or, in the absence of tonsillar symptoms, failing to get properly into nasal fossae or down into larynx, if diphtheria should involve one of the latter locations.

Dr. E. D. Burkhard reported a case as follows:

Diabetes Mellitus

A lady, age 51, height 5 feet 6 inches, weight 194 pounds. Married—has one child, living and healthy.

Family History: Unimportant save obesity of father.

Previous History: Has had varicella, measles and pertussis in childhood. One normal pregnancy, no miscarriages. Until 1914 or 1915 she had not been sick except for "flu" about two weeks, recovery, no sequelae.

About 1921 began having light attacks of gall stone colic. In July, 1924, she had a moderately severe attack of colic and passed a small stone. She has been in good health until—

Present History: About April 1, 1925, she first noticed disturbance of vision—reversal from "far sight" to "near sight"—the condition which caused her to seek relief. Incidentally she reported excessive thirst and acknowledged polyuria.

Urinalysis showed 1.25 per cent sugar and blood sugar (fasting) was .3 per cent Tolerance test after 100 grams of sugar gave .5 per cent in two hours. Weight gradually fell from 194 pounds, April 1st, to 153 pounds, September 1st. Rigid diet, alone, desugarized the urine occasionally and reduced the blood sugar to around .2 per cent. She was then given 40 units of Insulin daily which made the urine sugar free. The insulin dosage has been reduced to 24 units daily and the diet increased without producing glycosuria. She has gained about 3 pounds in a month. Further increase in weight is not desired. Upon the present diet we expect to be able to reduce the Insulin dosage perceptibly.

Dr. F. E. Wallace reported a case as follows:

Ocular Diphtheria With Complications

Case History: W. C. W. Male. Age 59. A 15-year-old son developed diphtheria. At time quarantine was lifted the father was found to be a carrier. He was kept under quarantine at home. Two weeks later, at 5 a. m., slight pain and swelling developed in right upper lid. By 7 a. m. pain and swelling was very severe. At 9 o'clock pain was intense and eye closed. Sent to isolation hospital. Patient seen by me at 1:30 p. m.

Upper lid purplish color, overriding lower by three-quarters of an inch. Cornea could not be seen. Lid exceedingly tender and board like. Slight mucopurulent secretion. Patient very restless with nervous phenomena, at times very slightly delirious. Did not desire food. Temperature, 102; pulse, 120. A tumor was felt under inner upper edge orbit. Tonsils moderately enlarged and of purplish color.

Culture of secretion ordered; 20,000 units of antitoxin given, 3,000 intra-venously and the rest hypodermic. Special nurse ordered. Treatment consisted of saturated solution, magnesium sul-

phate applied as hot compresses constantly, washing out secretion and instillation 5 per cent mercurochrome every one-half hour. Sprays of same in nose and throat. Catharsis of epsom salts. Culture developed diphtheria. Gradual cessation of all symptoms. At end of five days could see cornea, which was intact. A 4 mm. size ulcer of skin was now seen at junction of upper lid and nose, and no doubt was connected with tumor mass as it seemed to be a fistula with secretion.

Temperature normal, restlessness and delirium disappeared, no pain, but marked swelling, tenderness still present. Eye, nose and throat culture still positive.

On 7th and 9th days culture still positive as above. On 11th day culture was negative of eye secretions, but positive of nose and throat. Swelling and tenderness better. Local treatments every hour. Thirteenth day culture negative of nose, 15th day negative of throat, 17th day patient discharged. Lid had subsided to former condition. tumor mass and fistula still present.

Past History: Eight or ten years ago a pimple developed on nasal bridge. In two years it was size of dime and spread onto sides of nose. In four years involved one-fourth surface of nose. After another two years it involved major portion of surface and Christian Science and paste doctors were tried. When I saw him eight months ago right lid much reddened and moderately swollen. Three-fourths of surface of nose and small portion of skin of right brow a shining scar, a tumor mass present under right orbital edge above and inward. No open ulcer but slight secretion. Upper lid dropping and covered about one-half of eyeball. Right eye displaced slightly down and out. No diplopia. Vision not affected. Conjunctiva of eye and lower lid and sclera and underlying parts appeared normal. Sent to St. Louis for radium treatment. This is again ordered following diphtheria.

LEGISLATORS

It is absolutely foolish to expect that a few doctors can influence the legislature after it is in session, for this cannot be done unless they are members themselves or have a favorable body to work upon, and you doctors who are busy at home had better look to it and be certain how the men stand whom you send to the legislature and it is your duty to see to this before you give them your support and if they are unfavorable it is your duty to get out in the open and defeat them.

ROYAL W. CALKINS, M. D.

There were 4,978 hospitals in the United States at the beginning of 1923 with beds for 373,475 patients at the same time, or 3.5 beds for every thousand people in the United States.

THE WYOMING STATE MEDICAL SOCIETY

OFFICERS

President.....Dr. C. H. Platz, Casper, Wyo.
1st Vice-President.....Dr. I. W. Blake, Buffalo, Wyo.
2nd Vice-President.....Dr. F. A. Mills, Powell, Wyo.
3rd Vice-President.....Dr. J. L. Lynn, Lander, Wyo.
Secretary.....Dr. Earl Whedon, Sheridan, Wyo.
Treasurer.....Dr. Evald Olson, Lovell, Wyo.

MEDICAL DEFENSE COMMITTEE

Dr. Earl Whedon, Secretary.
Dr. G. A. Hamilton, Laramie, Wyo.
Dr. E. S. Lauzer, Rock Springs, Wyo.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 21, 22, 23, 1926.

OFFICERS, 1925-1926

President, George A. Boyd, Colorado Springs.

President-elect, George H. Curfman, Salida.

Vice-Presidents, 1st, Edward Delehanty, Denver; 2nd, W. E. Hays, Sterling; 3rd, E. H. Munro, Grand Junction; 4th, L. E. Likes, Lamar.

Secretary, F. B. Stephenson, Denver.

Treasurer, W. A. Sedwick, Denver.

Delegates to the American Medical Association:

Senior, C. N. Meader, Denver, term expires 1926.

Alternate, B. B. Blotz, Rocky Ford, term expires 1926.

Junior, L. H. McKinnie, Colorado Springs, term expires 1927.

Alternate, W. T. Little, Canon City, term expires 1927.

Councilors:

Term expires

District 1. Ella A. Mead, Greeley.....1930

District 2. G. P. Lingenfelter, Denver.....1929

District 3. John R. Espey, Trinidad.....1928

District 4. W. W. Crook, Glenwood Springs.....1926

District 5. A. J. Nossaman, Pagosa Springs.....1927

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, H. H. Alldredge, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, F. A. Jackson, Salida.

Delta County—Last Friday of each month; secretary, H. A. Smith, Delta.

Denver County—First and third Tuesday of each month; secretary, L. V. Sams, Denver.

El Paso County—Second Wednesday of each month; Secy., J. B. Crouch, Colorado Springs.

Fremont County—Fourth Monday of each month; secretary, Edgar C. Webb, Canon City.

Garfield County—Last Thursday of each month; secretary, L. R. Carson, Glenwood Springs.

Huerfano County—Third Thursday of each month; secretary, L. W. Lee, La Veta, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, V. E. Cram, Fort Collins.

Las Animas County—First Friday of each month; secretary, P. W. Carmichael, Sopris.

Mesa County—First Tuesday of each month; secretary, E. H. Peterson, Grand Junction.

Montrose County—First Thursday of each month; secretary, C. G. Brethouwer, Montrose.

Morgan County—Time of meeting (not reported) secretary, N. D. Wells, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, B. F. Blotz, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, L. R. Mitchell, Eads.

Pueblo County—First and third Tuesday of each month; secretary, D. E. Hoag, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, C. A. Ringle, Greeley.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. B. Crouch, chairman, Colorado Springs; E. D. Downing, Woodmen; Fred M. Heller, Pueblo.

Committee on Local Arrangements: J. H. Brown, chairman, Colorado Springs; C. S. Morrison, Colorado Springs; O. R. Gillett, Colorado Springs.

Committee on Credentials: F. B. Stephenson, chairman, Denver; Margaret Johnson, Boulder; Harry A. Johnson, Fort Morgan.

Committee on Public Policy: D. A. Strickler, chairman, Denver; Edward Jackson, Denver; Jean Gale, Denver; W. W. King, Denver; Crum Epler, Pueblo; C. A. Ringle, Greeley; O. M. Gilbert, Boulder.

Committee on Publication: T. E. Carmody, chairman, Denver (term expires 1926); W. H. Crisp, Denver (term expires 1927); C. S. Bluemel, Denver (term expires 1928).

Auditing Committee: G. W. Miel, chairman, Denver; J. J. Mahoney, Colorado Springs; Frank L. Dennis, Colorado Springs.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; F. W. E. Henkel, Rifle; Ben Beshoar, Trinidad.

Committee on Medical Education: C. N. Meader, chairman, Denver; F. M. Heller, Pueblo; J. J. Waring, Denver.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; J. A. Wenk, Colorado Springs; J. J. Pattee, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. N. Meader, chairman, Denver (term expires 1926); W. T. Little, Canon City (term expires 1927); C. O. Giese, Colorado Springs (term expires 1928).

Committee on Military Affairs: Cuthbert Powell, chairman, Denver; Crum Epler, Pueblo; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: C. D. Spivak, chairman, Denver; Philip Hillkowitz, Denver; A. Freudenthal, Trinidad.

Committee to Study Model Constitution and By-Laws: C. N. Meader, chairman, Denver; Melville Black, Denver; W. H. Crisp, Denver.

Committee to Confer with Boy Scouts of Colorado: E. B. Swerdfeger, chairman, Denver; T. R. Love, Denver; Harry Canby, Denver.

Curator of 1925 Exhibits: E. D. Downing, Woodmen.

Committee to Consider Full-Time Secretary: Melville Black, chairman, Denver; Edward Jackson, Denver; B. B. Blotz, Rocky Ford.

BOOK REVIEWS

A Manual of Gynecology, by John C. Hirst, M.D., Associate in Obstetrics, University of Pennsylvania. Second Edition, Revised. 12mo of 508 pages with 195 illustrations. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$3.50 net.

This Manual has been revised over the first edition in order to bring the subject matter thoroughly up to date. Dr. Hirst has attempted in this volume to present the arrangement of the subject he has used in teaching during the past twenty years, concisely, accurately and without unnecessary waste of space. In many of the sections he has considered the subject from the viewpoint of both the obstetrician and the gynecologist. The effort has been made to omit unprofitable discussion, and to present to the student, be he graduate or undergraduate, at least one method of treatment which has been proven of value. Special chapters are given over to common ailments, such as leukorrhea and backache and in particular a discussion of the endocrine glands, omitting all academic controversy and only that needed by the student in his early work, given prominence. This manual is a compromise between a handbook of gynecology and a more voluminous text book and makes a desirable addition to the physician's ready reference shelf, inasmuch as it permits of quick access to problems which may have to be met without loss of time. As Dr. Hirst so aptly puts it, "the purpose for which it was written is to give the medical student a reasonably concise and accurate outline of the subject and to the busy practitioner the information he may seek, without the need of voluminous reading." All this it does in a very admirable way and is to be heartily recommended.

R. HUDSTON.

The Surgical Clinics of North America. December, 1924. Volume 4, Number 6. Lahey Clinic Number. New England Deaconess and New England Baptist Hospitals, Boston, Mass. Index Number. Philadelphia and London: W. B. Saunders Company. Paper, \$12.00; cloth, \$16.00.

A clinic by Frank Lahey and his associates makes a very interesting number of the Surgical Clinics of North America. Naturally most of the space is given to the thyroid gland, which is fitting as this small group has done over twenty-five hundred goitre operations.

Lahey reviews his methods of treating his goitre cases. He is not convinced as to the value of iodine in any group of cases. He does have a definite system of preoperative and postoperative treatment which is partly responsible for his marvelously low mortality rate. Unfortunately, he says practically nothing in regard to his operative technique. Gas and oxygen, rather than local anesthesia in the majority of his cases, he thinks helps lower the mortality.

Burton Hamilton, the medical adviser of the Lahey Clinic, reviews the heart conditions present in toxic thyroid states, the differential diagnosis of these conditions, and their treatment. He gives, too, a most illuminating view of the heart conditions that may be mistaken for goitre symptoms, making his contribution a most valuable part of the clinic.

G. B. PACKARD, JR.

The Physiology of Mind. An Interpretation Based on Biological, Morphological, Physical, and Chemical Considerations. By Francis X. Dercum, A.M., M.D., Ph.D. Member of the American Philosophical Society; Fellow of the College of Physicians of Philadelphia; Member of the Academy of Natural Sciences of Philadelphia; Professor of Nervous and Mental Diseases in the Jefferson Medical College, etc. Second Edition, Reset. Philadelphia and London. W. B. Saunders Company, 1925. Price \$3.50.

Under this title the author discusses the evolution of the nervous system, taking into account the relation between complexity of structure and variety of adaptation. The author lets the structure and condition of neurones and especially synapses explain almost everything for them. Memory, dreams, consciousness, emotions, hypnosis, instincts, psychoses, hysteria,—all depend upon some hereditary or acquired condition, temporary or permanent, of the synapses of the thalamus or neopallium.

One feels that every argument is brought forth to prove the physical as the *sine qua non* of mind. Even Einstein's theory is utilized to dissolve the distinction between the living and dead and thus bring living matter into inseparable connection with life. (Is this a more acceptable form of immortality for the author?) The last chapter deals with "Freudism" as a cult in which the author briefly gives vent to his feelings and criticism about this school. The critical reader will demand a more adequate statement of facts.

LLOYD H. ZIEGLER.

Pseudo-Appendicitis. A study of mechanical syndromes of the right lower quadrant simulating appendicitis. By Thierry De Martel, Chirurgien des Hospitaux de Paris and Edouard Antoine, Medecin des Hospitaux de Paris. Authorized translation from the French by James A. Evans, A.B., M.D., Formerly Assistant Radiologist, Hospital St., Antoine, Paris. Preface by R. Bensaude, Medecin des Hospitaux. Illustrated with 41 Engravings. F. A. Davis Company, Publishers, 1925. Price \$3.00.

This is a very interesting book on conditions other than the vermiform appendix, which cause distress in the right lower quadrant.

Following a brief foreword by F. Gregory Connell is a concise introduction of "General Considerations". Clinical and radiologic studies are dealt with in some detail. A chapter, entitled "Painful Syndromes of the Right Cecocolon", points out the possible causes of pain in the right lower quadrant other than a pathological appendix. This is followed by a very good differential diagnosis of chronic appendicitis. The book ends with a chapter on treatment, which includes general, medical and surgical, the latter being somewhat heroic at times.

This book, I believe, is extremely well summed up in the words of F. Gregory Connell: "If the numerous operators of this country could be induced to read or study this small but important book, much would be accomplished toward transforming them into surgeons, and would bring about a realization of the fact that chronic appendicitis and pain in the right side, either with or without gastro-intestinal symptoms, are *not synonymous*."

WILLIAM W. HAGGART.

Goitre. Non Surgical Types and Treatment. By Israel Bram, M.D., Instructor in Clinical Medicine, Jefferson Medical College, Philadelphia, Pennsylvania.

Dr. Bram's treatment of goitre offers several valuable points in the medical treatment of certain types of this disease. Often the text is not clear as to his exact meaning and some of his diagnoses leave one in doubt as to their accuracy. The book may be read with some benefit by anyone treating goitre cases, but must not be accepted as an authority.

T. D. CUNNINGHAM.

Medical Clinics of North America. St. Louis number, July, 1925. Issued serially, one number every month. Volume IX, Number 1. Octavo of 275 pages with 67 illustrations. Per clinic year (July 1925 to May 1926). Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London. W. B. Saunders Company.

This, the St. Louis Number, has 18 contributors and 20 articles. Dr. Wm. Englebach has the front page, with an article on Studies in Hair Growth and Pigmentation. Quite a number of pictures are presented to illustrate this very good and instructive article; however, pictures, in skin diseases, usually do not demonstrate very much (a publication of the price, and grade of this one, could well take more pains to better illustrate skin lesions). The author argues pretty clearly for a differentiation between those due to lesions of the hypophysis and the suprarenal cortex. He makes this point pretty clear, too. The writer has also the gift of expressing himself in a mellifluous style,—a great many writers have a sort of jerky-cog wheel gait that disturbs one's continuity of thought a great deal. A full bibliography is appended.

Dr. Soper has an article on foods that is good. He gives a list of foods—not medicines—that produce acidity and a list that produce alkalinity. Dieticians will find this very helpful. One writer suggests diuretin for certain forms of hydrocephalus; one suggests a book by Prof. Terman on the Measurement of Human Intelligence; one concludes that in selected cases of paresis, tryparsamid and salvarsan is the best treatment we have. One author stands by our old friend, digitalis in preference to quinidin in auricular fibrillation. Here is an old friend we have not seen now for some time in the Medical Clinics of North America. "Post hoc, ergo propter hoc." We have pencil marked some grammatical errors in this volume. We conclude that the St. Louis number is well up to the standard set by other medical centers.

J. T. ELLIOTT.

Methods in Surgery: by Glover H. Copher, M. D., Instructor in Surgery, Washington University School of Medicine; Clinical Assistant to Barnes Hospital; Surgeon to Out-patients, Washington University Dispensary; Visiting Surgeon St. Louis Hospital. Two hundred thirty-two pages. Price \$3.00. The C. V. Mosby Company, St. Louis, 1925.

A volume of 231 pages, by Glover H. Copher, M.D., Instructor in Surgery, Washington University School of Medicine, and published by the C. B. Mosby Co., St. Louis, Mo.

The work is of convenient pocket size, well written on excellent paper and quite legible. It is an outline of the surgical methods used at Barnes Hospital, St. Louis, Children's Hospital and Washington University Dispensary.

It contains many valuable suggestions on working methods for pre-operative preparation and post-operative treatment and one surgically inclined may read every page with profit. The Surgical treatment of the diabetic is of especial interest.

C. E. TENNANT.

Gynecology. Obstetrics. The Practical Medicine Series. Comprising eight volumes on the Year's Progress in Medicine and Surgery. Under the general editorial charge of Charles L. Mix, A.M., M.D., Volume V. Gynecology edited by Thomas J. Watkins, M.D., F.A.C.S. Obstetrics edited by Joseph B. De Lee, A.M., M.D., with the collaboration of J. P. Greenhill, B.S., M.D. Series 1924. The Year Book Publishers, 304 South Dearborn Street, Chicago. Price, \$2.00.

This small volume follows the plan of previous editions of the Practical Medical Series. Gynecology is reviewed by Dr. Thomas J. Watkins, and obstetrics by Dr. Joseph B. De Lee. It is a concise review of the progress made, during the year, in these specialties. Foreign, as well as American, literature is abstracted, and the comments of the editors are enlightening and fair. In the section on Gynecology extensive consideration is given to injuries and displacements, to infections, and to tumors. In the section on Obstetrics, the toxemias, operative procedures, and points in technique, are among the subjects discussed and ably criticized. Inasmuch as the practice of gynecology and obstetrics is not limited to the specialist, but is, rather, the common meeting ground of the general surgeon and the general practitioner, the book should find a wide field of usefulness. The untimely death of one of the editors—Dr. Watkins—takes from the profession one of its leading specialists.

W. H. HALLEY.

Empyema Thoracis. By Evarts A. Graham, A.B., M. D., Member of Empyema Commission, U. S. Army; Professor of Surgery, Washington University School of Medicine; Surgeon-in-chief, Barnes Hospital and St. Louis Children's Hospital. One hundred ten pages with illustrations. Price, \$2.50. The C. V. Mosby Company, St. Louis, 1925.

Samuel D. Gross prize award of 1920. By Evarts A. Graham.

It is a one hundred page volume of interesting reading. To the surgeon specially interested in thoracic surgery there is probably nothing new because of its delayed publication. Much controversy about the author's views is refuted most convincingly in the final chapter.

As a member of the United States Army Empyema Commission, Dr. Graham propounded an entirely different conception of the mechanics of open pneumothorax. This he backed by very careful and ingenious animal experimentation. The mechanics thus learned was applied to the treatment of acute empyema the mortality of which was so high in the training camps at the beginning. His clinical deductions were justified by a lowered mortality rate which was more than coincidence. It is a very timely book for any one to read who has been disappointed in results following early operation in hemolytic streptococcal infections of the pleura.

C. T. LOWEN.

More cases of plague occurred in 1924 throughout the world than in any of the other five previous years. This was largely due to the high prevalence in Northern India which is still the chief center of the disease.

The Medical Follies. An Analysis of the Foibles of Some Healing Cults, Including Osteopathy, Homeopathy, Chiropractic, and the Electronic Reactions of Abrams, with Essays on the Antivivisectionists, Health Legislation, Physical Culture, Birth Control, and Rejuvenation. By Morris Fishbein, M.D., editor of the Journal of The American Medical Association. New York. Boni & Liveright. 1925.

This book is a compilation of well written articles covering the leading healing fads of America. Beginning with Elasha Perkins and his "Patent Tractors", the author takes up one by one the various quacks and cults that have flourished, or are still flourishing. He discusses homeopathy, osteopathy, chiropractic and Abramsism. His chapters on fads in health legislation, birth control, antivivisection, rejuvenation, medicine and the press, "*Physical Culture*", and the big muscle boys are clear expositions of these modern foibles. Evidently the book is intended for instruction of lay readers, but the biting satire and ridicule hurled at the healing cults will probably engender as much opposition as support. Such a statement of facts convinces only those who have "wills to believe".
C. F. KEMPER.

COLORADO AUTHORS

The Use of Lipoidal in the Localization of Spinal Lesions. By Franklin G. Ebaugh, A.B., M.D., Denver. From Amer. Jr. of Med. Sc., June, 1925, Vol. CLXIX, p. 865.

The author recommends "Lipoidal," an iodized poppy oil as a valuable aid in the earlier diagnosis of spinal block. He also emphasizes its value in making a positive diagnosis in certain difficult cases, as encephalitis with radicular changes, thus preventing unnecessary operation. Cases in which the combined spinal and cisternal puncture findings are indeterminate are positively diagnosed by this method. Three interesting case reports are given. In these, the test was not followed by unfavorable symptoms referable to the oil injection. The oil is injected into the cisterna and settles by gravity to the point of block, or, if no block, to the base of the spinal sack. The oil throws a satisfactory shadow in the roentgenogram.

Edward B. Dewey, M.D.

CLAIMS AND CURES

The greater the claims that are made, even to the height of absurdity, the readier a great many men and women are to accept them. Moderate, sensible, thoroughly rational claims they pay little attention to, but let a man once insist that he knows more than all the world put together about something or other and especially about the disease and that in addition power has been given him to heal it and it is astounding how many men and women will flock around him and be willing to give him money and actually be "cured"—at least for a time—of their ills.—James J. Walsh, in "Cures."

A special course in ophthalmology has been arranged by the Pekin Union Medical College to be given in the Chinese language.

*Colorado authors are requested to send carbon copies of their manuscripts or reprints of their articles to Dr. Edward Dewey, 110 Metropolitan Building, Denver. Abstracts will be printed in Colorado Medicine.

ORTHODOXY

Life, in short, has become a solemn sporting proposition—solemn enough in its heavy responsibilities and the magnitude of the stakes to satisfy our deepest religious longings; sporty enough to tickle the fancy of a baseball fan or an explorer in darkest Borneo. We can play the game or refuse to play it. At present most of the human organization, governmental, educational, social, and religious, its directed, as it always has been, to holding things down, and to perpetuating beliefs and policies which belong to the past and have been but too gingerly readjusted to our new knowledge and new conditions. On the other hand, there are various scientific associations which are bent on revising and amplifying our knowledge and are not pledged to keeping alive any belief or method which cannot stand the criticism which comes from further information. The terrible fear of falling into mere rationalizing is gradually extending from the so-called natural sciences to psychology, anthropology, politics, and political economy. All this is a cheering response to the new situation.—Robinson in "The Mind in the Making."

THE ARABS AND SCIENCE

The world owes much to the Arabs. Not only did they invent many of our boyhood games, such as the humming top, set spinning by pulling a cord, but they made great strides in medicine, and their materia medica was but little different from the modern. Their highly skilled surgeons were performing major operations with the use of anesthetics in the day when Europe depended entirely upon the miraculous healing of the clergy. In chemistry we have them to thank for the discovery of alcohol, potassium, nitrate of silver, corrosive sublimate, sulphuric acid, and nitric acid.—Lowell Thomas, "With Lawrence in Arabia."

THE MORALS OF MEDICINE

Let me be sick myself if sometimes the malady of my patient be not a disease unto me. I desire rather to cure his infirmities than my own necessities. Where I do him no good, methinks it is scarce honest gain; though I confess, 'tis but the worthy salary of our well-intended endeavours. I am not only ashamed, but heartily sorry, that, besides death, there are diseases incurable: yet not for my own sake, or that they be beyond my Art, but for the general cause and sake of humanity, whose common cause I apprehend as mine own.—Thos. Browne.

CRIMINALS, DEFECTIVES, DELINQUENTS, DEPENDENTS

The Department of Commerce announces that on or about January 1, 1923, there were 893,679 persons confined in federal, state, city, county, and private institutions for defectives, dependents, criminals, and juvenile delinquents, hospitals for mentally diseased, institutions for feeble-minded and epileptics, homes for adults and dependent or neglected children, institutions for juvenile delinquents, penal institutions, and almshouses.

Some archeologists see in yellow fever the cause of the downfall of prehistoric American civilizations. There are those who see a new era of progress for Latin America now that the plague of yellow fever has been removed.

TUNING IN

Human Repairs

Ford Hospital has created a mild sensation in medical circles by throwing away its price list for human repairs and parts. The Ford staff has been officially informed that the flat-rate system of charging for the treatment of human ailments has been abandoned, and that "the patient's charges will be on an income basis", which is the customary method of the medical profession as a whole in making charges.

The Ford method still differs, however, from the method of the profession as a whole in one interesting particular. Mr. Ford has placed a maximum limit of \$1,000 on surgical fees, and a maximum limit of \$70 a week on medical charges.

Why Mr. Ford abolished the fee system on which he has operated for 10 years is not publicly stated; but the fact is that besides the millions he has put into his hospital he has had to make up a deficit of \$2,400,000 in that period.—Detroit Saturday Night.

An Anthrax Shave

Professor Ellerman, of the University of Copenhagen, recently died as a result of anthrax contracted from a shaving brush made in China.—Dearborn Independent.

Chemistry and Sport

To the man who took a sort of extension course in sports by working a few hours in the college laboratory of twenty years ago, chemistry was a way of blowing up some of the university property without being held responsible for the damage.

In those days anybody who worked with a test tube was a chemist.—The Chemical Foundation

"The Cosmopolitan University"

It is reported that the so-called "Oriental University," Washington, D. C., whose charter was revoked, Dec. 25, 1923, has secured another charter and will now operate an institution at Popular Hill, Md., under a new name, "The Cosmopolitan University."—Federation Bulletin.

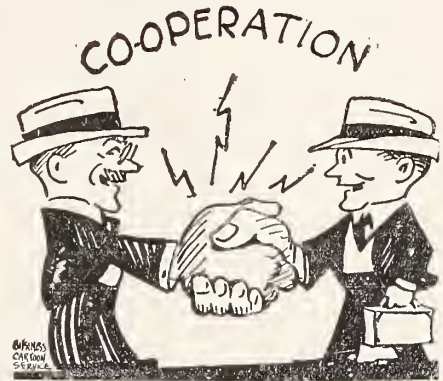
Inspecting the Child

Examination of nearly 600,000 infants and pre-school children at 26,353 child-health conferences during the fiscal years 1924 and 1925 was reported to the Children's Bureau of the U. S. Department of Labor by states cooperating under the Federal Maternity and Infancy Act.

Colorado Mortality Statistics, 1924

The Department of Commerce announces that the 1924 death rate for Colorado was 1,247 per 100,000 population as compared with 1,242 in 1923. This increase in 1924 is largely accounted for by increases in the death rates from measles (from 10 to 22 per 100,000 population), pneumonia, all forms (from 112 to 123 per 100,000 population), and nephritis (from 71 to 76).

Decreases in 1924 are shown in the death rates from influenza (from 54 in 1923 to 34 per 100,000 population), diphtheria (from 24 to 16 per 100,000 population), and typhoid fever and whooping-cough (each from 11 in 1923 to 7).



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TUNING IN

(Continued)

Quarry Accidents

Accidents at quarries in the United States in the calendar year 1924 resulted in 138 deaths and 14,777 injuries, according to statistics compiled by the Bureau of Mines, Department of Commerce. The figures compare with 142 deaths and 14,990 injuries at the quarries during the year 1923. The fatality rate for 1924 is the lowest recorded since the Bureau of Mines began, in 1911, the compilation of accident data for the quarry industry.

Vocational Guidance, Rome

Rome is to have a municipal vocational guidance office which will give information on trades and occupations to children of the four higher school grades by means of pamphlets, lectures, moving pictures, and visits to factories and work places. A record of the mental and physical fitness of each child will be kept.—Children's Bureau.

St. Elizabeth's Hospital

Established in 1852, this is a class A institution for the treatment of mental diseases of the Army, Navy, and District of Columbia. The daily average number of patients treated is 4,200 and its average number of employees is 1,280—Department of Interior Review.

Yellow Bands for Whooping Cough

If you see someone in Delaware wearing a yellow band around his coat sleeve, keep away, for it is likely he has whooping cough, and under a recent ruling of the Board of Health, hereafter all sufferers from this disease will be compelled to designate themselves with bright yellow.—Atlantic Medical Journal.

Wyoming Mortality Statistics, 1924

The Department of Commerce announces that the 1924 death rate for Wyoming was 951 per 100,000 population as compared with 1,029 in 1923. This decrease in 1924 is largely accounted for by the decreases in the death rates from mine accidents (from 61 to 35 per 100,000 population) and railroad accidents (from 34 to 11 per 100,000 population).

Other marked decreases in 1924 appear in the death rates from cancer (from 55 to 44 per 100,000 population), influenza (from 32 to 24), whooping cough (from 11 to 5), and diarrhea and enteritis, under 2 years (from 22 to 16).

Increases in 1924 are shown in the death rates from tuberculosis, all forms (from 36 in 1923 to 48 per 100,000 population), diseases of the heart (from 84 to 93), scarlet fever (from 2 to 7), and measles (from 14 to 19).

Vienna Protects the Deaf

Pedestrians in Vienna who are deaf will hereafter wear a yellow arm band 10 cm. wide with three large, round, black spots. The suggestion was made by the police because several recent accidents were the result of subnormal hearing on the part of certain pedestrians. The "Vox" society (70,000 members—all of whom have subnormal hearing) supplied all of its members with arm bands. The society finds that 12 per cent of the traffic accidents have been due to subnormal hearing.—Time.

(Continued on page X)

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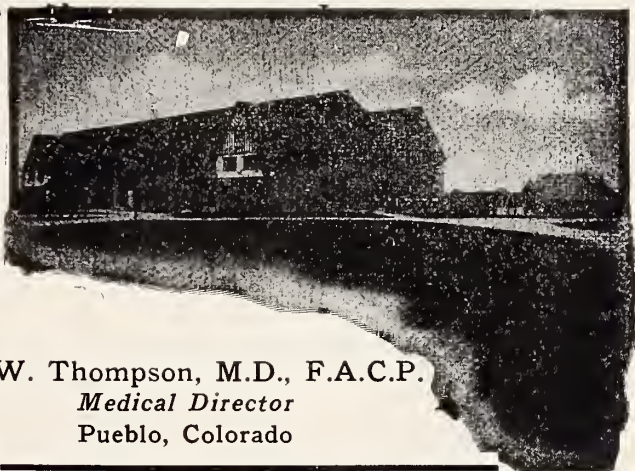
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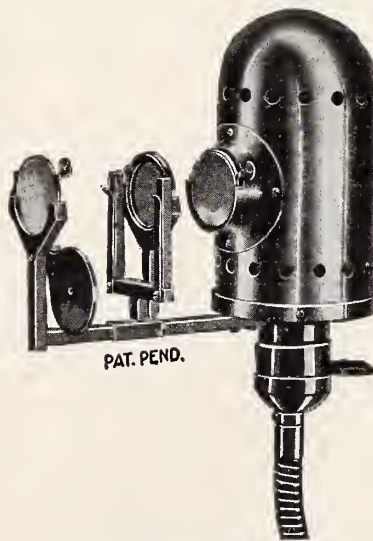
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TUNING IN

(Continued)

Two Chiropractic Schools Close

As a result of court actions, the American College of Chiropractic and the Interstate Chiropractic School, both of Buffalo, N. Y., have closed their doors. The judge directed the jury to acquit the defendants in the latter case, but the faculty has been rearrested and will be tried again for granting diplomas without authority. The judge in the latter case not long ago wrote a testimonial for a naturopath.—Federation Bulletin.

Drugstore Vitamins

Vitamins should be picked in the garden or bought at the market and not at the drugstore, is the advice given by Dr. D. Breese Jones, chief of the Protein Investigation Laboratory of the United States Bureau of Chemistry in a publication which summarizes present day knowledge of the subject. Many if not most of the commercial vitamin preparations now on the drug shelves are worthless, he said.

Sir Auckland Geddes Assumes Leadership of Social Hygiene Council

Sir Auckland Geddes, former British ambassador to the United States, has accepted the presidency of the British Social Hygiene Council. As Sir Auckland Geddes is already president of the Society for the Prevention of Venereal Disease, it is anticipated that, if the present efforts are continued and extended, venereal diseases in England will be reduced to a minimum.—The Medico-Legal Journal.

The Chaulmoogra tree (*Hydnocarpus Anthelmintica*), from the seeds of which is made the Chaulmoogra oil used in the treatment of leprosy, is a native of the tiger-infested jungles of upper Burma. The American Government is making extensive experiments in growing the tree in our various tropical possessions, and it seems to be doing very well on the island of Oahu, Hawaii.—Clinical Medicine.

Nutritional Education

The American Institute of Baking has recently received from the Robert Boyd Ward Fund a gift of \$100,000.00 for the establishment of a Department of Nutritional Education.

The formation of such a department has been carefully considered for some time and should be of great value, not only to the baking industry in general but also to housewives, child welfare workers and members of the medical and dental professions.—Clinical Medicine.

Co-operative Clinicians

The Kentucky Board of Health is appointing co-operative clinicians throughout the state for venereal disease work. Members of the state and county medical societies who are listed by the County Health Officer as particularly interested in venereal diseases, are eligible for these appointments.—The Journal of the Medical Association of Georgia.

Tax Exemption

Another effort is being made by the American Association before the ways and means committee of Congress to allow physicians to deduct from taxable income the amount spent in postgraduate work and in traveling to medical society meetings.—The Nebraska State Medical Journal.

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C. H. PLATZ
President-Elect, Wyoming State Medical Society

EDITORIAL NOTES AND COMMENT

C. H. PLATZ

In answer to your request for a brief biography of my peaceful and uneventful life will state that Kansas is the place of my nativity.

I did not like the state, so at the early age of one year I migrated to Omaha. I might say parenthetically that Mary Ellen Lease, Carry Nation and Sockless Simpson had not at that time given it the notoriety that it now has. Neither was it dry.

My pre-medical work was done at a small college at Tabor, Iowa, and Nebraska University. I graduated from Hahneman Medical, Chicago, 1903. As I recall I did not distinguish myself to any noticeable extent. I was annexed in marriage by a school teacher at Columbus, Nebraska, and have been going to school ever since.

Moved to Torrington, Wyoming, practiced medicine there seventeen years. Built a small hospital there better to handle my work.

Left Torrington two years ago and came to Casper, Wyoming, where I quit general practice and limited my work to diseases of children and diabetes.

Was at one time President of the Scotts Bluff County Medical Society at Scottsbluff, Nebraska.

In a moment of mental aberration the House of Delegates of the Wyoming State Medical Society elected me their President for the year 1925-1926.

A SOCIAL MEDICAL PROBLEM

Scientific investigation in the field of medicine during the last half century has been productive of individual and social values of incalculable worth. Therefore, such investigations are still going on, as well they should. But a social medical problem now exists, probably greater and more baffling in solution than the medical problems of chemistry, physics, and biology. Could the mass of knowledge, now on hand, be applied in the most practical manner to individuals and so-

ciety, both to prevent and to cure disease, doubtless there would be a greater social gain than will accrue from any new facts of medicine likely to be discovered within the next decade or two. The problem, then, is the social problem of adapting the mass of medical knowledge to the highest service of society. Physicians, genuinely interested in end-results of their science and art, need to make this a question as much to be considered and discussed as the diagnosis and treatment of the various diseases. County and state societies, medical schools, and professional journals can as well devote time and space to this problem as to those of pure science of which they are so justly proud. Physicians must be taught this viewpoint of their problem. They must learn to think it as conscientiously as they diagnose and treat disease. They must become propagandists in its behalf, with a living conviction that sickness is as really prevented and health maintained by its advancement as by the discovery of any new facts.

The difficulties in the way of solution are truly great. There is the lethargy and indifference on the part of most doctors toward such a social problem, in contradistinction to their praiseworthy enthusiasm for the physical sciences. There, too, is the prejudice and ignorance on the part of a great social group relative to the practical worth of medical knowledge. Because of these social conditions, cultists and charlatans thrive, and scientific truth often fails to meet the specific health needs of the individual or community. If the purpose of medical science is what we think it is, a solution of this problem is as urgent as the discovery of a cure for cancer or a specific for tuberculosis.

MUSEUM SPECIMENS

To all students of the medical sciences whether graduates or not, the material which is contained in a medical museum always furnishes an interesting, and often a necessary link between the clinical and theoretical consideration of diseases. Sir

William Osler, it is well known, obtained much of his knowledge from close observation of many autopsies, and study of material thus obtained as well as the aid offered by the laboratories. In this country the various large medical centers point with pride to their museums in which are kept visual evidences of the many forms of pathological changes as they occur and are encountered by men in the practice of medicine.

The State of Colorado is fortunate to possess a teaching hospital and medical school of high rank, which is destined to be the center of medical research for this western country and to play an important part in graduate teaching.

To occupy such a position in the scientific world will necessitate a museum with ample material of all types as aid in imparting knowledge. Material has been slowly accumulating for years, so that at the present time the museum does possess much of interest and value. Much of this has come to the school from members of the faculty and from other friends at large, in this and other states. This museum can and will become one of importance in this region if all its friends contribute whenever possible and the results of this accumulation of material will be readily accessible and of great value to the medical fraternity.

E. R. M.

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What can you buy with ten dollars? That depends on what you want. Some places it will buy all you want, and some places nothing.

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of Medical Societies; where every member is a red-blooded he man, who knows and honors you for your true worth and not for what your father left you. A Society in which there is no politics, where every man has as good a chance as any other to be honored by election as President. A Society in which every man may have his say and in which there are no cliques, no snobs, just good fellows striving to honor their profession and as patriotic as any in the land.

You get the benefits of the medical defense in case of suit for malpractice. Such suits in over 95 per cent are simply attempts at blackmail. Your fellow members appreciate what you are trying to do and they know you possess the same degree of skill as possessed by the rest of our members, and use your best judgment on every case. They know that you are up to the standard or you would not belong to your County and State Society.

Think it over! How much comfort you would get in times of trouble, to know that the rest of the boys are backing you up against blackmailers. Next, you are given one of the best and most enjoyable State Conventions in the West; a meeting where good fellowship is on tap all the time and one that we look forward to each year as a vacation and education in one.

And now Colorado Medicine is to be given by the State Society to you free! It has been a splendid journal and we all believe we shall receive many times the price of our membership. That it may be more useful with each issue we crave your support. How much more do you want for ten dollars? So pay your County Secretary and if there is no County Society send them, during January, to the State Secretary at Sheridan, Wyoming.

E. W.

CHARCOT ANNIVERSARY

The year 1925 has been one of special interest in the history of neurology since it marked the hundredth anniversary of the birth of one of its most distinguished pioneers. Charcot memorial meetings have been held in all parts of the world and participants in the Paris Commemoration program represented all the scientific nations. Even in

the Orient a ceremonial was held at Tokio May 25th, at which the Japanese Government was represented by the Vice Minister of Foreign Affairs.

Jean Martin Charcot was born in Paris, November 29, 1825, the son of a carriage maker. Of the four sons one pursued the vocation of the father; another followed a military career; while a third joined a regiment in Africa and disappeared without having been heard from afterward.

Charcot began his medical studies in 1844 at the age of 19, and became an interne four years later, graduating as Doctor of Medicine in 1853, and three years afterward was appointed physician of the Central Hospital Bureau. In 1860, he became professor of pathological anatomy in the Medical Faculty of Paris and in 1862 began the famous connection with Salpetriere which continued until the end of his life. He was elected to the Academy of Medicine in 1873 and ten years later became a member of the Institute.

His doctorate thesis was based on the history of the affection then described under the names of primary asthenic gout, nodosities of the joints, chronic articular rheumatism in its primary form.

In 1872 he was nominated Professor of Pathological Anatomy in the Faculty of Medicine of Paris, succeeding Vulpian.

He established in 1882 the Clinic of Diseases of the Nervous System at Salpetriere which afterward became world renowned and still bears the name of the Clinique Charcot.

The earlier studies of the master were devoted to chronic rheumatic conditions and chronic parenchymatous affections of the lungs with the description of the crystals which bear his name. His interest gradually inclined toward the nervous system and with Bouchard he studied the secondary degenerations and described also with Bouchard military aneurisms of the nervous centers. This was followed in 1868 by his memorable description of "sclerose en plaques" (disseminated sclerosis). The tremor of this disease lead his inquiring mind to a thorough study of the various tremors especially contrasting the senile tremor and that of paralysis agitans with the tremor of disseminated sclerosis.

Probably the most outstanding chapter in his neuropathological studies is that with reference to the muscular atrophies as a result of which the clinical entity of atrophic lateral sclerosis has since become generally known as Charcot's Disease.

None the less notable were his pronouncements in the field of functional disorders of the nervous system and one scarcely conceives the subject of hysteria without recalling Charcot. His studies in this particular phase of psychoneurosis were most extensive, but especially concerned with its relation to hypnotism. Indeed it is in connection with his investigations of hypnotism that his name became popularly known.

In addition to his labors on neuropathology and even physiological problems, he made many contributions to other branches of medicine especially conspicuous among which were his researches in diseases of the liver, especially in the various forms of cirrhosis and its relation to kidney diseases and the pathological anatomy of the kidney changes as well as extensive studies in pulmonary phthisis.

As a teacher he was remarkably and unusually successful and always commanded a band of enthusiastic followers.

His death occurred suddenly on the 16th of August, 1893, at Morvan where he had gone for a holiday. In the words of Pierre Marie "in a lost corner of Morvan, away from all assistance, almost alone and far from those whom he loved."

One can find no more fitting words than those used by his illustrious follower in closing his memorial address in Paris, "Charcot was a genial physician, an admirable master, and a great Frenchman."

G. A. M.

WORK

Blessed is he who has found his work; let him ask no other blessedness; he has a life purpose. Labor is force, breathed into him by Almighty God, awakening him to all nobleness, to all knowledge. Hast thou valued patience, courage, openness to light, or readiness to own thy mistakes? In wrestling with the dim brute powers of fact thou wilt continually learn. For every noble work the possibilities are diffused immensity, undiscoverable, except in faith.—Thomas Carlyle.

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LEONARD FREEMAN, M.D.

DENVER, COLORADO

This peculiar phenomenon is usually spoken of as "so-called white bile;" and properly so, because it is not bile at all, but a more or less clear, watery fluid occurring in the bile-ducts under certain obscure conditions. Its rarity is shown by the fact that in von Schmieden's clinic (1) it was encountered but five times in 638 liver operations. I have seen it but twice in about 500 operations. Judd (2) of the Mayo Clinic, however, has found it considerably more common—19 cases in 649 operations upon the common and hepatic ducts.

The absence of articles on the subject in American literature is striking, although it was first noted by Frerichs (3), in 1861, and thoroughly described by Kausch (4), in 1911. It is not mentioned in any of our ordinary text-books on surgery, or even in such comprehensive systems as those of Keen and Ochsner. In the current literature I have been able to find but two articles, one by Judd and Lyons, and one by Rous and McMasters (5).

In spite of much consideration of the subject in France and Germany, until recently the cause of white bile has remained obscure, and there are still features that are not clearly understood. One reason for this was the inability to produce the condition for study in animals, and the belief that this could not be done; but Rous and McMasters have lately shown that it can be evolved at will under proper circumstances—a triumph for American research.

As has been stated, the fluid is not bile, and contains few, if any, of the constituents of bile. It is usually watery and colorless, but may be whitish or grayish and possibly stained with bile-pigment. As repeatedly shown by analysis, it really is the normal secretion from the lining membrane of the bile-passages, in other words, a hydrops. Large quantities of this fluid may be present, even as much as a quart being observed.

Causation.—In order to understand the causation of white bile four things must be borne in mind:

1. The well-known fact that although the bile naturally flows through its ducts into the intestine, if this route is obstructed, it reverses its current and passes into the blood, both directly, and indirectly by way of the lymphatics, the process being somewhat comparable to the action of a syringe with a leaky piston. That secretion of bile does not cease during obstruction is shown by the formation of jaundice, by the presence of pigment in the liver cells, and by the rapidity with which the normal quantity of bile reappears in the intestines when the obstruction is relieved—within a few days, a few hours, or even almost immediately. This persistence of secretion under back-pressure seems to be peculiar to the liver, as it does not appear in the kidney or in other secretory organs. From the blood, bile is excreted, principally by the kidneys and the sweat-glands, jaundice resulting when this elimination is insufficient. In other words, when the front door is closed, the bile goes out the back door.

2. There is normally not only secretion of bile by the liver-cells, but also an abundant secretion of a watery, colorless fluid from the lining membrane of the ducts, which is never bile-stained, even in the presence of jaundice-like the tears and the saliva (Rous). Ordinarily this mixes with the bile and flows into the duodenum, but when the current is reversed from obstruction it accompanies the bile into the blood.

3. One of the principal functions of the gallbladder is to thicken the bile by absorption of its fluid constituents, in which it exhibits an astounding activity. Hence its mucous lining is different from that of the ducts—the ducts secrete while the gallbladder absorbs. This absorbing membrane also lines the cystic duct, which thus may be regarded as a part of the gallbladder.

4. Bilirubin is the principal coloring matter of the bile. It becomes changed by oxi-

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dation, when stagnant or exposed to the air, into biliverdin, which is much darker, thus sometimes producing the impression of a more concentrated bile when, in reality, it may even be less so and only darker in color.

Let us now consider the manner in which white bile is formed, which will also help us to understand why, when obstruction is so common, white bile is so rare.

Primarily, it must be understood that white bile never appears unless the obstruction is complete and lasting, which may be from a tumor, an impacted stone, or other cause. Intermittent obstruction, from a ball-valve stone, never causes it. When a stone cannot be found, carcinoma should be strongly suspected.

The probable procedure is as follows: The obstruction backs up the normal mixture of bile and duct-secretion, the back-pressure being at first compensated for by dilatation of the ducts, but sooner or later this dilatation reaches its limit and the flow reverses itself and passes into the blood. The liver-cells do not cease secreting, but the secretion goes into the blood-stream instead of into the ducts. This leaves the ducts filled with a stagnant mixture of bile and secretion from their walls. The bile at first greatly predominates; but the advantage lies on the side of the watery fluid, because its secretion resists considerable pressure and continues to form, while no more bile can enter.

So far the situation is clear, but why is it that in general the ducts remain filled with bile, while occasionally this is replaced with a colorless, watery fluid? Rous and McMasters endeavor to explain the question in this way: Ordinarily, when the gallbladder is present and functions properly, it absorbs the watery constituents of the mixture in the bile-tracts rapidly enough to keep down the duct-pressure and prevent a reverse flow into the blood, thus leaving the passages filled with bile, the color of which may be accentuated by the transformation of bilirubin into biliverdin. Occasionally, however, when the gall-bladder is absent or does not function, the back-pressure increases, from the secretions, until a reverse flow

takes place into the general circulation. Such a flow slowly reduces the amount of bile, while the watery secretion continues, until the ducts, and possibly the gallbladder, are filled with more or less colorless, watery fluid—so-called white bile. That the gallbladder may be either contracted or distended has been established by observation, it being only necessary that it does not function properly. The common duct is usually dilated, sometimes enormously, but this is not necessarily so if its walls have been thickened by inflammation. Anything tending to increase secretion would hasten the process, but hyper-secretion is not necessary, as has been assumed. Klose and Wachsmuth assert that white bile never occurs in the presence of inflammation, although this is contradicted by Rous and by Judd. However this may be, it is evident that inflammatory processes might complicate the situation and produce unexpected and perplexing results.

Rous and McMasters have supported their plausible theory by many experiments upon dogs, in which they were able to produce white bile at will by tying off the common duct, or one of the hepatic ducts, providing the gallbladder was removed or excluded—a technical point which had escaped the foreign investigators. Drury and Rous (6) recently have shown that colorless bile occasionally may occur without obstruction. Starting with the modern conception, which has much in its favor, that bile pigment is formed elsewhere than in the liver, and is mostly excreted and not secreted by that organ, they have been able to prove that a failure of excretion, from various causes, may result in a "white bile," even in the presence of jaundice. Hence it is evident that anomalies in hepatic function also must be taken into consideration in explaining the white bile of obstruction. In these anomalies, the part played by the sympathetic nervous system still remains obscure.

Symptoms.—The symptoms of hydrops of the bile-passages are identical with those occurring in ordinary obstruction, so that the diagnosis cannot be made until white bile is discovered during an operation.

There is danger, however, of overlooking the obstruction to the common duct (Klose) in cases of general hydrops, where the gallbladder also is involved; because the appearance of jaundice may be delayed for some time, for various reasons, thus leading the operator to suppose that hydrops of the gallbladder alone exists. This may lead to the performance of cholecystectomy without opening the duct, especially when thickness of its walls has prevented dilatation.

Jaundice may exist for many weeks or months in connection with hydrops of the bile-tracts, the patients even remaining in comparatively good condition; and, curiously enough, it may be intermittent in character, as evidenced in one of my own cases.

Treatment.—The treatment consists, when possible, in the removal of the obstruction, together with the gallbladder, which usually can be done in cases of impacted stone. When this is impracticable, for instance in cancer of the head of the pancreas, the gallbladder, or the common duct itself, should be anastomosed with the duodenum, the stomach or the jejunum. Where the stoppage is too high in the hepatic duct to permit of such an anastomosis, a hepato-enterostomy or gastrostomy may be attempted, in spite of the unpromising outlook. It is of course evident that a cholecystectomy should not hastily be done until the situation is evident.

Following a successful anastomosis, a return to normal conditions is often surprisingly rapid, bile frequently reappearing in the stools within a few days or even hours—in fact it has been seen to flow from the wound in the common duct before the operation was completed, thus demonstrating the integrity of the secretory mechanism.

Prognosis.—It goes without saying that early operations offer a better outlook than late ones, but nevertheless good results have been obtained in cases of long standing. In general the prognosis is not unfavorable. The subcutaneous or intravenous administration of glucose may be of advantage. When death occurs it is usually from cholemia or from hemorrhage due to vitiation of the blood from jaundice.

Cases.—My two cases offer points of interest. In one of them the protracted jaundice was frankly intermittent so that a diagnosis of ball-valve stone in the common duct was made without hesitation. At the operation, however, no stone was found, but an indurated enlargement of the head of the pancreas, probably carcinomatous in nature. An anastomosis was done between the distended gallbladder and the pyloric end of the stomach. Bile appeared abundantly in the stools on the fourth day and the patient did so well that he was considered to be out of danger. On the tenth day, however, he became suddenly ill with symptoms that were interpreted as those of acute pancreatitis and succumbed on the thirteenth day.

The intermittent jaundice is difficult to explain, unless one assumes that the secretion of bile was actually suppressed at intervals, from excessive back-pressure, because the essential factor in the causation of white bile is supposed to be an absolute and constant obstruction, which is incompatible with intermittency. A striking peculiarity in this case was an enormously swollen liver, large areas of which were discolored greenish by bile. This might be supposed to have some bearing upon the variability of the jaundice, in that the swelling of the hepatic tissues might occasionally have interfered with the entrance of bile into the blood and determined instead its deposition within the liver itself.

In the other case the jaundice was constant. An obstruction, due to carcinomatous infiltration of the liver was found at the bifurcation of the hepatic duct, and a hepato-gastrostomy was attempted, with the hope of relieving the annoying symptoms. This was accomplished by plunging a pair of hemostatic forceps deeply into the substance of the liver near its inferior margin, thus tapping a dilated duct from which flowed a large quantity of grayish-white fluid. The margins of the opening were then sutured to an opening in the pyloric region of the stomach, a short rubber tube being placed in the artificial canal to insure its patency. Unfortunately the anastomosis gave way on the fourth day, causing gastric leakage; and

this, together with secondary hemorrhage, led to the death of the patient on the sixth day following the operation. There was no appearance of bile in the stools.

Resume.—1. So-called white bile is a rare condition occurring in complete and permanent obstruction of one of the main bile ducts.

2. It is really not bile, but a watery secretion from the lining membrane of the ducts.

3. It is only found when a properly-functioning gallbladder co-exists with the obstruction, and seldom, if ever, in the presence of cholangitis.

4. The liver cells do not cease to secrete, but the flow of bile is reversed from the ducts into the blood, thus causing jaundice, which may be intermittent, thus simulating a ball-valve stone—a fact which heretofore has not been recorded.

5. The diagnosis cannot be made except at the time of operation.

6. Treatment consists in performing an anastomosis between some portion of the gastrointestinal tract, preferably the duodenum, and either the gallbladder, the common bile duct, the hepatic duct, or the liver itself. When this is done the prognosis is not unfavorable.

¹Klose and Wachsmuth, *Archiv. Klin. Chir.*, Vol. 123, p. 1, 1923.

²E. Starr Judd and J. H. Lyons, *Ann. Surg.*, Vol. 77, p. 281, 1923.

³Klinik der Leberkrankheiten, Vol. 1, p. 132.

⁴Mitt. a. d. Grenzgeb. d. Med. u. Chir., Vol. 23, p. 138, 1911.

⁵Rous and McMasters, *Jour. Experiment. Med.*, Vol. 34, p. 75, 1921.

⁶Jour. Exper. Med., Vol. 41, p. 611, 1925.

DISCUSSION

Dr. C. W. Maynard, Pueblo: Dr. Freeman, has intimated that the condition is almost entirely of academic or pathological interest, and I presume that is why Dr. Webb asked me to discuss the paper. Since the condition cannot be diagnosed before the operation, there remains for the pathologist only the field of helping in diagnosis, if possible, and in determining the actual pathology afterwards. It has occurred to me that the laboratory man might contribute to the diagnosis, not of this condition, directly, but of an obstructive jaundice, by the same principle used by the Van den Bergh test to determine the amount of bilirubin in the blood. Van den Bergh has advocated a technique which is said to tell us whether or not a jaundice is obstructive or hemolytic. I don't know from personal experience whether that will always be true, or not. If it is, there will always be a possibility of watching these cases in their stages of absence of jaundice. Dr. Freeman says in one of his cases there was

part of the time no jaundice, although there must have been a continual obstruction. Now, if those cases in which permanent obstruction is suspected, but which show periods of intermission of the jaundice, were tested as to the bile content of the blood serum during those periods, I wonder whether that would perhaps be of help in operating earlier and so avoiding the seriousness of the obstruction which results in white bile. That is about the only place that I could figure the laboratory might be of help. The condition, as Dr. Freeman has said, is of some prognostic value because most of the cases, or at least a large percentage of them, die. One thing he did not mention which Judd has advocated, and that is the gradual release of the pressure in those cases. If the sac is opened and the fluid allowed to escape all at once, the relief of pressure in the liver may result in an edema of the liver which contributes to the shock. Judd puts in a rubber tube and clamps it, allowing a small amount to escape at a time, and his reports are that his mortality has been much less since he did that. I have not been privileged to see a case of white bile. I find that the profession is inclined to speak of the colorless fluid in the gallbladder as white bile. That, in the terminology of Dr. Freeman, is not the case. Colorless fluid in the gallbladder is not at all uncommon. We have had two such cases in a series of about seventy-five gallbladder operations, but no cases of the secretion in the ducts. Another thing which occurred to me to be of interest is that these cases of permanent obstruction do not always have white bile even though the gallbladder is not functioning. I recently had called to my attention a case of an 11-year-old girl with apparently a structural defect in the common duct. She had complete obstruction. The cyst held something over a quart, but it was bile. As to what becomes of the bile in these cases, is another question. Dr. Freeman stated that the secretion of pigment by the liver does not cease even though pressure becomes great. If it does not, the question remains open as to what becomes of it in the stages of absence of jaundice. In that connection, I was interested in a report within the last month by Higgins, who has done some research work on mice and rats. He tells us that mice have gallbladders which perform the normal function of thickening the bile. Rats have no gallbladders, but they do have about the portal system a plexus of hepatic ducts which apparently serve the function of the gallbladder in mice. In support of this he says that the liver bile in a rat contains about eight times the amount of bile pigment as in a mouse. They gain the ability of thickening the bile or absorbing the liquid, allowing a concentration of bile pigment, and perhaps develop the ability to keep it from being passed over into the blood.

Dr. Freeman (closing): The only criticism I have of Dr. Maynard is this: That he is an accomplished prevaricator. He started out by saying that I had covered the subject so that he could not say anything, and he immediately began to talk about things that I don't know anything about. He knows more about it than I do. The only thing that I want to emphasize is this: That I read a very scientific article not long ago, by a very scientific German surgeon, in which he made the assertion, and stayed with it, and seemed to prove it, that it was absolutely impossible to produce white bile in animals; and immediately I picked up in my library a book having in it an article by Rous and McMasters of the Rockefeller Foundation, in which it had not only been done once, but a dozen times!

WILLIAM CRAWFORD GORGAS*

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Dr. Wm. Crawford Gorgas, the subject of our discourse this evening, was born at Mobile, Ala., October 3, 1854. He was the son of General Josiah G. Gorgas, a West Point graduate and Chief of Ordnance in the Confederate Army. After a good, preliminary education, and his failure to obtain an appointment as a cadet at West Point Military Academy, he studied medicine with the definite purpose of entering the Medical Department of the Army. He received the degree of Doctor of Medicine at Bellevue in 1875, and later took special work under Welch. This was of inestimable benefit to him in his later career.

In 1880 he entered the Medical Department of the Army, and was soon assigned to duty in Texas. Shortly came an epidemic of yellow fever at Old Fort Brown, adjoining the present city of Brownsville, Tex., on the Rio Grande. His Department Commander sent him to aid in its suppression with a letter stating that he was sending "the brightest young medical officer in the Department."

We may measure the enthusiasm of this young army surgeon by noting the fact that he immediately broke the rules of quarantine in his ardent desire to make a post-mortem examination of a man dead of yellow fever, and was arrested by Lieutenant—afterwards General—Crowder, and confined in the guardhouse. He was shortly released, and contracted yellow fever, with its priceless advantage to him of future immunity.

Almost from the beginning of trade in the West Indies, yellow fever had been endemic in the Gulf Region. While Havana may perhaps be regarded as its chief seat, all of the ports of the West Indies were subject to it, as well as Vera Cruz, the ports of the northern coast of South America, Rio de Janeiro, and Santos, in Brazil, and other lesser cities. The settlements along the West Coast of Africa were frequently infected, and those of Spain and Portugal suffered at intervals. Other cities of Europe were less exposed, and the disease obtained a foothold only occasionally.

Because of the extent of our semi-tropical coastline and the character of our commerce, our own southern states have been the chief sufferers from the disease. Yet cities as far north as Baltimore, Philadelphia, New York and Boston were not immune.

A certain clinical characteristic of yellow fever should be noted. More than any other disease it tends to its own elimination in the endemic centers, since, before modern methods of prevention came into effect, all who survived in these centers owed their survival to an immunity conferred by a mild attack of the fever during infancy or childhood. But commerce and war fed into these pestilential centers a stream of non-immune individuals from more northern climes, so that the fire still burned, and under favorable circumstances spread widely.

For two centuries no northern man visited Havana, Vera Cruz, Rio Janeiro, Santos, Guayaquil, New Orleans or Mobile in the favorable season without imminent danger of contracting yellow fever. My own father was infected in the middle forties of the last century while his ship was loading cotton at the levees of New Orleans. Coffee ships have lain at anchor for a year in the harbor of Santos, Brazil, utterly deserted, because the members of every crew sent out to bring them home died to a man before they could rescue the ship from its internment in this plague-spot of the world. It is probable that one of the chief reasons leading Napoleon to sell Louisiana to our young Republic was that he was so impressed by the destruction, by this scourge, of the French army at Santo Domingo, that he doubted his ability to hold New Orleans and the other Gulf ports in the face of this "Pestilence that walketh in Darkness."

In view of the known nocturnal habits of the *stegomyia fasciata*, one might well believe from the above quotation that yellow fever was known in the days of the Psalmist. When we consider the centuries of the malignant domination of this disease over many of the fairest of our states the occasional invasion of the northern ports; the enormous morbidity

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in these outbreaks, and the terrible mortality in many of them; the annually recurring paralysis of commerce by this disease and by its associated quarantine; the temporary depopulation of the regions affected, and the horror and even panic inspired by the helplessness of mankind in the face of an affliction of which not even the cause nor the manner of its spread were known, we may regard the medical problem presented by its continued presence as the most serious one our country has ever been called upon to solve.

Then in 1898, as though directed by the hand of fate, came the Spanish War and the occupation of Cuba and neighboring tropical islands. I remember wondering how we could ever justify ourselves in sacrificing our fine, young American fighting men in taking Cuba. Yet our conquest, dictated by higher motives than ever before had actuated a nation, has probably saved, constructively speaking, a thousand lives for every one lost in that war. Since it had become a considerable port, Havana had never been free from yellow fever. General Leonard Wood, providentially a physician before he was a General, was appointed Governor of Cuba, and appointed Dr. Gorgas Chief Sanitary Officer of Havana.

Here in Havana, there were focused upon the problem of the conquest of yellow fever many different factors: firstly,—General Wood, a physician, as Governor of Cuba; secondly,—supporting him, a young nation with abounding energy and resources to aid in the work; thirdly, and of no mean consequence, the knowledge of the work of Dr. Charles Finlay of Havana, who from the year 1881 onward had proclaimed in the face of scorn and derision, and in spite of his failure to obtain scientific proof of his theory, that the *stegomyia fasciata* was the agent of transmission of yellow fever; and, fourthly—Colonel Gorgas, with nearly twenty years of experience along the Gulf Coast, with all the varying aspects of the disease.

The obsession in medical circles that filth was the cause of yellow fever was so overpowering that, without the insistence of Finlay, "like the voice of one crying in the wilderness," that the mosquito carried the disease, the establishment of the truth might have,

for an indefinite period, baffled even Gorgas and his associates, with consequent delay in the development of those means of eradication which were finally successful.

Then came the epoch-making work of the immortal commission—Reed, Carroll, Lazear, and Agramonte,—originated and supported by the Sanitary Office, and the solution of the great problem of the manner of transmission of yellow fever. Carroll himself gives credit to Dr. Juan Guiteras for being the first actually to produce the disease by applying a contaminated mosquito (obtained from Carroll) to a non-immune Spaniard. Following this a series of experiments settled the question for all time.

At this point the great work of Gorgas began. Twenty years of experience and preparation found him armed for the struggle.

It had not at first been appreciated that a single variety of mosquito, nocturnal in its habits, and inhabiting only occupied houses, was the sole carrier of the disease. Much effort was wasted before sanitary measures, based upon these facts, were developed and firm control of the infection established. Even then, the smallest problem was to remove or cover with a film of oil the standing water in vases, basins, cistern, spouts, barrels, etc., to destroy the mosquitoes by burning pyrethrum powder in the sleeping rooms: to prevent the mosquito from becoming contaminated by efficiently screening every yellow fever patient, and to protect all non-immune persons by screening from contaminating mosquitoes. The real difficulty was to convert an easy-going tropical citizenry, themselves practically immune to the disease and almost contemptuous of it, because of their long familiarity with it, to a belief that the control of a scourge which they believed to be beyond human control, was to be attained by what seemed to them almost childish measures. Never did ridicule find a fairer target than here,—a foreign health official who presumed to tell the inhabitants of Havana, with their traditions of centuries of experience with the disease that it all came from vessels of water and a few mosquitoes. Even high officers of the Army and Navy scoffed at the ridiculous idea. But Gorgas was armed with the truth; and gradu-

ally his measures for the prevention of yellow fever met with such success as to convince even the skeptical Cubans. In the first years of this century Havana was freed from the disease for the first time in its modern history.

As Havana was released from its burden of the centuries, our Government took over the task of building the Panama Canal. At this juncture there had appeared a Central American Revolution, the establishment of the Republic of Panama, and the instant seizure by the vigilant Roosevelt of the first good opportunity for the beginning of the great work. In experience with tropical diseases, in ability and in character Gorgas had no serious competitor, and was appointed chief sanitary officer for the Canal Zone. Here the French, lacking proper sanitation, had lost 22,000 out of about 100,000 employees in nine years. In the Old French Hospital at Ancon, we were shown the wards in which the good Catholic Sisters kept hanging flower-pots with water in the saucers, and shallow water-filled receptacles under the legs of the beds to prevent the ants from ascending. And here hundreds died, because in those shallow pools the fatal mosquitoes bred, and then infected new patients entering with ailments other than yellow fever.

The difficulties in sanitation in Cuba were great, in Panama they were prodigious. Let us study the contemporary opinions of the situations. Ships had lain in the harbor of Colon with every man dead of yellow fever. The country was said to have two seasons,—a wet one from April 15th to December 15th, when the non-immune died of fellow fever in four or five days, and then a dry, or healthy season when any one died of pernicious malarial fever in twenty-four to thirty-six hours. Le Blanc, an old and prominent French resident, told DeLesseps when he was about to undertake the construction of the canal, that there were not trees enough on the isthmus to make crosses for the graves of the dead if the work were undertaken. It was said that for every tie laid a Chinaman gave his life.

The great builder of the Suez Canal had his financial difficulties at Panama, but was successful in overcoming them; the brilliant

French engineers had stupendous engineering problems, but were solving them with success; but the great undertaking was thwarted at every turn by the fearful death rate among the personnel, and without discrimination as between the newly arrived engineers from the Ecole Polytechnique of Paris, or the lowly laborers from China and the West Indies.

The material factors mentioned nearly brought the great work to a standstill, but the "coup de grace" was psychical in character. It is said that only under most exceptional circumstances such, for instance, as those that sustained the gallant Frenchmen at Verdun, will even a trained army continue to fight under the stress of the incidence of 40 per cent casualties. Under such conditions the finest morale breaks down. And here the highly-trained French supervisory forces were psychically disrupted by such occurrences as the arrival of a party of fine, young men from France, everyone of whom was dead from disease before the arrival of the next steamer. The ignorant laborers became panic stricken as they beheld day after day the long, funeral trains and the ceaseless growth of the grave yards. The great French enterprise ended in disease, death and disaster. DeLesseps' failure was not one of engineering nor of finance, but lack of sanitation.

If we concede abundant resources and unlimited authority,—having in view this admitted failure of the French from lack of modern sanitation,—the establishment of such hygienic conditions in the tropics as to render possible the building of the canal should have been regarded as an undertaking of relatively similar magnitude to the building of the Great Ditch itself. In this stupendous undertaking General Goethals himself in his official report states: "No new engineering principles were involved." But it required perhaps equal genius to apply to the engineering problems and to the sanitation of the Canal Zone the knowledge of the accumulated scientific data applicable to each. Yet such is the natural resistance of the human mind to new ideas that, even with the brilliant work at Havana behind him, when Gorgas was sent to Panama, he found nothing but difficulties before him. Admiral Walker, chief of the First

Commission, and Governor George W. Davis, openly laughed at him and his mosquitoes. Secretary of War Taft was so impressed by the views of the officers of the Commission that he recommended that Gorgas be recalled. The report by C. A. L. Reed of Cincinnati to Secretary of War Taft and the American Medical Association had great influence in Washington in showing up the failure of the Canal Commission properly to appreciate and support the Sanitary Department. Among conflicting reports, President Roosevelt turned to his old schoolmate and physician, Dr. Alex Lambert. In a long evening session Dr. Lambert convinced the President that if any canal were to be built, the mistakes of the French must be avoided, and that more power and support must be given to the Sanitary Department. Roosevelt was convinced, appointed an entirely new Commission, and made the Department independent. Later (1907-1913) General Gorgas was made a member of the Commission. Although there was still plenty of friction, the work thereafter went on efficiently. The general principles that had underlain the sanitary redemption of Havana were at once applied at Panama. The suppression of mosquitoes, which had eliminated yellow fever, had practically controlled malarial fever. The breeding places of the insects were drained or oiled; minnows, lizards, spiders and ants that fed upon the mosquito larvae were bred and distributed; and the vegetation along the banks of the water courses, where the winged pests were sheltered, was cut down. With better housing conditions, water supplies, disposal of sewage and sanitary control of every activity in the Canal Zone, other diseases decreased until the death rate soon dropped below that of any large city in the United States.

But the great General Goethals never came to look upon the work of the Sanitary Department with a friendly eye. He told General Gorgas that every mosquito caught cost the Government ten dollars. Yet without sanitation the great work of building the canal would as certainly have failed as did the effort of DeLesseps. An engineer and executive of the very first order, who belonged to the army and could not resign, as had his

predecessors, was required before success was achieved. Meanwhile the vitally important sanitary work was initiated by the genius of one who at the beginning, in place of cordial cooperation, was accorded ridicule by his superiors; instead of proper supplies and laborers, was begrudged even the barest necessities for his work, and who, in place of official support was recommended for dismissal by Secretary of War Taft, that a man of such common sense as would appeal to the Canal Commission might be appointed in his stead.

After May, 1906, no case of yellow fever developed in the Canal Zone. Even in September, 1905, General Gorgas had been able to say to a group of the younger physicians gathered for a postmortem examination: "Gentlemen, you had better look well to this autopsy upon a case of yellow fever, for you will probably never have another chance."

In 1914, the general death rate of the United States was 14.1, and that of Panama 6.

In 1913, General Gorgas was asked to visit the great mines at the Rand in South Africa, to see what could be done to check the ravages of pneumonia, tuberculosis and miner's phthisis among the negro miners. By isolation, segregating the miners in small and sanitary cabins instead of the larger damp huts they had inhabited, by introducing better air, food, water and drainage and exterminating flies and mosquitoes, the serious troubles were corrected.

In Bulgaria and Serbia, in Ecuador and Peru, his advice was followed, and always with success. Yet all the great work we have mentioned was in the way of preparation for his supreme task,—that of organizing the medical service of the Great War. With all its faults of which many of you know by actual personal contact and observation, our medical organization was probably the best one in the world's history. If we need illustrations of the sagacity of General Gorgas, one may speak of his appointment of our old Colorado friend, Colonel Bushnell, as head of the Department of Tuberculosis, with a free hand to carry on his work, and the designation of that magnificent executive General Ireland, to the command of the Medical Department in France. His latter life was full of honors. In 1908, as a member of the House

of Delegates from Colorado, I assisted in his election to the presidency of the American Medical Association. Many honorary degrees and a special medal from the American Medical Association were conferred upon him. When appointed Surgeon General of the Army in 1914, the office was raised to a Major-Generalship in his honor.

On May 19, 1920, General Gorgas started for West Africa to continue his good work, was stricken with apoplexy and died in a few days in Guy's Hospital, in London. He was interred in Westminster, by order of the appreciative English Government.

That we may attain a more fair estimate of the work of General Gorgas, let us for a moment look to the past, that we may attempt some feeble forecast of the future. It is thought that Greek civilization perished because of malarial infection. It must still be very prevalent in that region if we regard, as I do, the Greek or Macedonian splenomegaly as the result of former severe malarial infections. The fall of Rome was in some degree due to the plasmodium malariae, and in modern times the Campagna has been almost depopulated by virulent malaria. But we need not go so far for our examples. Those of us who, forty years ago saw the unending stream of prairie schooners from Missouri, Arkansas and states further to the south, moving slowly to the Great Northwest need no reminder as to the prevalence of malaria. The sallow, anemic, languid, big-bellied men, with their complaint of the "ague cake," and their accompanying train of hopeless-looking women and forlorn children made a deep impression upon my young medical mind.

Happily, in all countries where the principles developed and applied by General Gorgas in the work we have studied, can be efficiently carried out, such wholesale disease can be prevented. The work started by Gorgas has done more than to eliminate yellow fever and almost subjugate malaria in our country and its possessions, and to a great extent in other countries. It has given us promise that, at no distant day, dengue and bubonic plague, tripanosomiasis, beriberi, pellagra and leprosy, cholera, helminth infections and the mycoses may all be practically eradicated.

In Panama, the establishment of the Gorgas Memorial Institute for Research in Tropical Diseases and the Gorgas School of Sanitation, will forward the great work. The institution lies adjacent to the New Santo Tomas Hospital. Here the Panamanian Government will cooperate to solve those problems of tropical medicine upon the solution of which depends the future colonization of the richest remaining areas of the world. Through these efforts the great tropical valleys of the Amazon and the Orinoco, the Congo and the Nile, the Ganges and the Brahmaputra, may yet support a dense white civilization in health, and therefore in efficiency and happiness. It is likely that future generations may conclude that the practical application by General Gorgas of the discoveries of the scientific men of the world has been the most potent factor in extending man's dominion over those fertile regions formerly classed as uninhabitable by the white race. More than any other man he has redeemed the tropics.

The world gives General Gorgas credit for his magnificent work in applying sanitary measures with such efficiency as to stamp out many tropical diseases. He deserves even greater praise for his tact, his perseverance, and his long-suffering patience in his efforts to obtain full recognition in many instances—even against antagonism from superior officers,—for the truths he proclaimed.

We may all learn this lesson from the career of the great sanitarian—in medicine, scientific knowledge is an absolute essential; but the one who would achieve success in any branch of medicine must devote as much attention to the human equation involved as to the purely scientific problem.

All of you who, in the American Medical Association, the Army or elsewhere came in contact with General Gorgas, will bear witness to his modest, cordial and human manner. Those officers who saw him appear unannounced at the Base Hospital mess table, that he might have personal knowledge as to the rations served, will testify to his faithfulness. As to his efficiency as an administrator and a sanitarian, "his works shall praise him."

SOME POINTS ON THE DIFFERENTIAL DIAGNOSIS OF FUNCTIONAL AND ORGANIC DISEASES OF THE NERVOUS SYSTEM*

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The subject of organic and functional paralysis of the nervous system has long played a leading role in neurologic diagnosis. Ofttimes, under favorable circumstances, the physician is perplexed as to whether the symptoms complained of by a patient are genuine, as far as the paralysis is concerned, or are of a pseudo-paralytic or non-organic nature. True it is, at times, that even the symptoms and clinical evidence are of such a character as to suggest to the examiner the strongest possibility of malingering on the part of a patient; quite naturally, therefore, it becomes important that those entrusted with the responsibility of passing upon the nature of a paralysis should be in possession of the fundamental facts concerning our knowledge of the nervous mechanism in health, in disease, and in alleged paralytic conditions, that no gross injustice be done either to the patient or to those who may be responsible for the injury with its resultant train of symptoms. As our complexity of social affairs steadily grows from year to year, and man's relationship with man correspondingly assumes greater magnitudes, it is not surprising that the various traumatic injuries producing incapacities have resulted in the legal consideration of the responsibility growing out of the relationship between employer and employee, between the injured person and utility corporations, and between individuals in private walks of life. Ultimately the legal consideration of the responsibility existing between employer and employee, and between private individuals and great public and private corporations, as far as injuries are concerned, is of considerable moment and effects the general public in a manner not well understood, for after all when the smoke and fumes of legal battle are blown from the field and judgment rendered for monies not honestly deserved, the public, the ultimate consumers of all products, like Jones, must and does

pay the freight. This is especially true in the final analysis of the Workmen's Compensation Law, for here the producer simply adds to the cost of production that amount of money necessary to cover his cost of caring for his employees or insuring them against injury; and the acquisition of any unjust claims simply increases the already heavy burden now carried by consuming individuals. That the public should be protected against infringement by those claiming permanent injuries as result of accident, which in truth are purely functional in character, thus becomes apparent, and to this end the physician serves humanity best when he endeavors to place the truth before those who must make the legal decision and regulate all compensatory measures. With these brief preliminary remarks, let us now turn our attention to a consideration of the subject matter proper.

The most common objective symptom complained of following injury, from a neurologic point of view, is that of paralysis. It behooves us, therefore, briefly to consider some of the anatomic-physiologic facts concerning the nervous mechanism that our conception and interpretation of clinical evidence may be the more accurate and reliable.

Many years ago the neuron theory was advanced, which theory, since substantiated by many known facts, still remains today and holds good for our present conception of the mechanism of the nervous system. Briefly, it will be recalled, a neuron consists of a nerve cell with its dendrites, a main projecting fibre or axis-cylinder and collaterals, and end tufts. Such a cell arising from the convolution just anterior to the Rolandic fissure of the brain gives rise to motor impulses, which in turn are conveyed over the projecting fibre passing downward through the centrum ovale, the anterior two-thirds of the posterior limb of the internal capsule, the crus, the pons, and the medulla, where decussation of groups of fibres takes place, 90 per cent crossing the median line to pass

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downward through the lateral column of the spinal cord as the crossed pyramidal tract where ultimately the end-tufts end in an arborescent arrangement about the cells in the anterior cornu on the same side; 10 per cent continuing downward as the direct pyramidal tract in the anterior aspect of the cord only to cross over through the anterior white commissure similarly to end about the cells in the anterior cornu of the opposite side. The fibres, arising from the cortical cells in the motor area of the brain, thus form the pathways—direct and indirect—by which impulses are transmitted from the brain to the multipolar motor cells in the anterior horns of the cord; and such systems are spoken of as the upper motor pathways, upper motor neurons, corticospinal neurons. On the other hand, the multipolar cells forming the gray matter in the anterior horns of the spinal cord give rise to axis-cylinders which pass outward from the cord substance and, uniting with sensory fibres coming from the posterior horns of the cord, form the spinal nerves, which, dividing into anterior and posterior branches, ultimately end in the musculature and various tissues of the body. A motor cell with its fibre, as just described, helps to form the lower motor segment and is referred to as the lower motor neuron, the lower motor pathway, the spinomuscular neuron. Thus the two great motor systems, while connected, are nevertheless distinct and separate nerve entities, and, whether belonging to the motor cranial nerves or to the spinal apparatus, these systems give origin to certain distinct clinical findings when their function is interfered with through disease or injury.

Let us now briefly consider the clinical findings when the corticospinal pathway is involved. Clinical experience, backed by anatomic-pathologic evidence, long ago firmly established the fact that certain very definite and distinct neurologic findings resulted from lesions involving either the cells or fibres composing the upper motor pathway. Hastily reviewing these findings we note that first of all motor paralysis, to a greater or lesser degree, results from such a lesion, a paralysis which involves diffuse

and not individual muscle groups. As a result of the liberation of some restraining influence normally exerted by an intact upper motor pathway on the cells in the anterior horns of the cord, the paralytic muscles in time become spastic or hypertonic. As a result of this hypertonicity the tendon reflexes are increased and oftentimes markedly exaggerated, and a well sustained ankle clonus may be elicited when the leg fibres are involved. There may be also superadded "associated movements" or synkinesiae on attempted voluntary movement of muscles. There is no atrophy of muscles except that arising from disuse. Electrical reactions are all normal. And when the foot is affected, the plantar response is extensor or pathologic in type. Thus we have in the consideration of a lesion involving some portion of the corticospinal pathway a group of clinical findings, most or all of which may be present in a given instance.

TABLE 1

Upper Motor Neuron (Corticospinal) Lesions Produce:

1. Paralysis of diffuse muscle groups.
2. Hypertonicity or spasticity of paralyzed muscles.
3. Preserved or increased tendon reflexes.
4. Clonus of muscles oftentimes.
5. Associated movements (synkinesiae).
6. Normal electrical reactions.
7. No atrophy except from disuse.
8. Extensor or pathologic toe signs.

On the other hand, lesions involving the spinomuscular pathway or lower motor neurons give rise to a symptom group which has nothing in common with the symptoms above enumerated except that of motor paralysis. Here the resultant paralysis is of a flaccid or flail-like character; individual muscles may be affected; there is an absence of associated movements; atrophy of paralyzed muscles result, due to trophic disturbances; the electrical reactions of degeneration may be present; the deep or tendon reflexes are diminished or lost; and the plantar reflex, if preserved, is of the normal flexor type.

TABLE 2

Lower Motor Neuron (Spinomuscular) Lesions Produce:

1. Paralysis—oftentimes of individual muscles.
2. Hypotonicity or flaccidity of paralyzed muscles.
3. Diminished or absent tendon reflexes.
4. No clonus.
5. No associated movements.

6. Electrical reactions of degeneration.
7. Atrophy due to trophic disturbance.
8. Plantar flexion of toes, if preserved.

Thus oftentimes it can be determined after a rather cursory examination whether a given lesion involves some portion of the upper portion of the lower pathway. True it is, at times, a diseased condition may involve simultaneously both motor systems, as is well known in amyotrophic lateral sclerosis, but here sufficient neurologic evidence is always present to such a degree that no question need arise as to whether the lesion is organic or functional in type.

With this brief consideration of the motor pathways—both upper and lower—let us now turn our attention to some of the more important skin reflexes and to their evaluation as diagnostic aids. It has long been recognized that the abdominal and, in a male subject, the cremasteric reflexes are diminished or lost on the affected side in individuals suffering from a true hemiplegic state. While in elderly men the cremasteric response may be sluggish or absent when the skin along the inner surface of the thigh is stroked, not infrequently a good response will result by making firm pressure on the thigh muscles, particularly in the region of Hunter's canal, or over the adductor tubercle of the femur. Likewise the abdominal reflex may be absent in those individuals whose belly walls are heavy with adipose, or relaxed as following the parturient state, or as a result of loss of adipose. In young adults, the loss of the abdominal reflex is at least suggestive of a disseminated sclerosis, providing the abdominal walls are normal and no acute process like appendicitis or enteric fever is present. The absence of these superficial reflexes should be an incentive for the examiner to look farther for corroborative evidence as to the existence of an organic lesion, for while these reflexes may be diminished in functional disorders, their absence in toto on one or both sides should always be linked with some condition due to a lesion involving the central nervous mechanism.

Of all the superficial reflexes, by far the most important are those known as toe signs. Ordinarily, when the skin of the plantar sur-

face of the foot is irritated by drawing some foreign object along the sole from behind forward, or stroking the ball of the foot, prompt plantar flexion of the toes ensues. Should the stimulation be too strong, contraction of the tensor fasciae femoris, dorsiflexion of the ankle and even partly voluntary movements may take place, thus obscuring the involuntary movement of the toes. For this reason it is necessary to use care, when endeavoring to elicit this reflex, to apply a stimulus just sufficient to produce toe movements, and nothing more. This reflex, which is purely flexor in type, occurs only when the reflex arc is intact and when there is no irritation or interruption of the corticospinal element of the central nervous system supplying motor impulses to the lower extremity. The fact that the governing influence of the upper motor neuron is necessary in order that the reflex be flexor in type, thus making it in one sense a cortical reflex, is a neurologic axiom, for Babinski, the noted French neurologist, over a quarter of a century ago, pointed out to the profession that in lesions involving the upper motor pathway, especially the pyramidal tracts, plantar stimulation produced extension instead of flexion of the toes, particularly of the great toe. The extensor movement of the great toe is somewhat slower than in normal flexion, and sometimes the remaining digits separate, as it were, assuming a fan-shape appearance. Babinski's extensor toe reflex never occurs in health, except in infancy before the tracts have become myelinated, and is one of the most valuable signs at our disposal in differentiating between the so-called functional and organic lesions of the nervous system.

Shortly after Babinski's report, Oppenheim, from the German neurological school, ascertained that extension of the great toe could also be produced in lesions involving the leg center or fibres by firmly stroking the skin along the tibial borders, especially the postero-internal border, from above downward at about the junction of the middle and lower thirds. Such a stimulus many times produces a contraction of the extensor longus hallucis and the tibialis anti-

cus muscles when the leg fibres are implicated.

In 1904, Gordon, of Philadelphia, found that by making firm pressure through the calf muscles onto the deep flexors beneath, extension of the great toe, or of all the toes, oftentimes resulted when organic motor disease was present.

In 1910, while serving my internship in the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, I found that the extensor toe reflex could likewise be produced, in many instances of organic involvement, by percussing the skin overlying the upper surface of the first metatarsophalangeal articulation.¹ The percussion method I long ago abandoned inasmuch as stroking the skin along the upper or inner surface of the great toe proved just as efficacious and was not quite so uncomfortable as a means of securing stimulation. That this reflex has been given a place in neurologic nosology has been borne out by many confirmatory reports by various clinicians as well as its inclusion in works on neurologic diagnosis.²

Chaddock, of St. Louis, in 1911 was the next to report on a new method for eliciting an extensor toe sign. This observer found that by gently stimulating the skin beneath the external malleolus, extension of the great toe, or at times fanning of the outer digits, oftentimes resulted when upper motor irritation or disease was present.

The last American neurologist, as far as I know, who added anything to the methods now in vogue for eliciting pathologic toe signs is Leo Crafts, of Minneapolis. Here, according to Craft's method, the skin is stimulated by drawing a sharp object over the dorsal surface of the foot and ankle from below upwards, producing in many instances extension of the great toe.

The Mendel-Beechterew phenomenon only occurs in organic lesions of the pyramidal tract. Here, percussion over the dorsum of the foot, especially in the region of the cuboid bone, causes a flexor movement of the toes, whereas normally, extension of the four outer toes results due to stimulation of the extensor brevis digitorum. Rossolimo's

sign of pyramidal tract disease consists in a similar sudden flexion movement of the toes, induced by their previous extension, caused by striking on their plantar surface.

Before passing for the moment from our consideration of the various pathologic toe signs and their method of elicitation, it may be well to state that any one, or any number, or even all, of these signs may be elicited in the same patient, and when found are indicative of but one thing; namely, irritation or disease of the cortico-spinal element of the central nervous system. While without question the Babinski toe sign stands as classic of its kind, it is comforting to know that other means are at our disposal in confirming the presence of irritative or destructive lesions of the upper motor pathway, and that the possibility of an individual simulating all the known pathologic toe signs is thus reduced to a minimum—for we know that in numbers there is strength.

So far we have considered the motor pathways, both upper and lower, the clinical findings produced when these pathways become irritated or diseased, and the manner in which pathologic toe signs are elicited. Let us now turn our attention to a consideration of the functional side of our nervous problem and endeavor better to understand some of the fundamental or basic elements entering into the make-up of those individuals who are prone to develop those symptoms spoken of as traumatic neurosis, traumatic-neurasthenia, traumatic hysteroneurasthenia, or better still as traumatic hysteria.

It has long been known to alienists that certain individuals are more prone to mental breakdown than are others. Usually a bad neuropathic or psychopathic background is discovered in such individuals, thus showing that fundamentally a marked instability of the nervous mechanism is present. What is true of the real psychoses also holds for the psychoneuroses, so-called, of which hysteria heads the list. When we come to analyze the elements entering into the composition of the hysteric we find that, like the poet, he is born and not made. In other words, "hysteria is an affection which is innate in the indi-

vidual." Starting with this premise which observers from Charcot's time down to the present do not dispute, let us consider some of the factors which bring the hysterical tendency from the background to the front. It may not be amiss to here state that not every individual, who possesses the make-up necessary for the development of hysteria, exercises that God given prerogative. Such a one, without question, has no knowledge of his nervous instability. It clearly can do no violence to the facts to assume that something of an extraneous origin or nature must come in contact with such an individual before the outward expressions of an hysterical state can come into being. What then may be said to be perhaps the most significant of all these extraneous causes? The answer, I feel, is a simple one. Clinical experience has shown that suggestion, fright, shock, or other emotional factors are the origin of the symptoms complained of by the hysteric. As my old master Dercum has well said, "It is the pathologic vulnerability to suggestion which constitutes hysteria".³ That suggestion does play the leading role as a causal factor can be proven in a number of ways. For instance, take the sensory changes—the anesthesias—so often observed in the hysterical state. The glove—or stocking—like anesthesia; the abrupt ending of the anesthetic line near the shoulder or hip in cases of hysterical monoplegia; the sharply defined line of anesthesia running down the median line of the head and trunk in cases of hysterical hemianesthesia; all these are clinical facts well known in medicine for years, and yet, anatomically speaking, such anesthetic areas are absolutely incompatible with known physiologic nerve distribution and point conclusively to the undisputable fact that such losses of sensation are within the mental, and clearly outside of the physical, realm. Clearly it is that these sensory losses are the outgrowth of an idea, of a suggestion, which has led the individual to believe that such changes are supposed to be present and to assume such distributions. To elucidate this point further, it may be interesting to note that Babinski, in testing out many cases of hysteria not

previously examined, failed to elicit sensory losses in a single instance, unless by suggestion in his manner of examination he conveyed to the patient the inference that sensory changes were being sought for. In other words, when suggestion is avoided, loss of sensation is not observed; and it clearly behooves the examiner to be on his guard if he is to avoid this pitfall so often encountered by those who ignore this law. Just as suggestion can and does bring about hysteria, so has clinical experience often proven that suggestion can and does bring about its cure.

Just as the sensory phenomena are unmistakably the outcroppings of a distorted mental reaction in the hysterically predisposed, so may those phenomena referred to the motor mechanism be so considered, for here again the existing phenomena cannot be referred to an organic lesion; they cannot be explained by any of the known facts of anatomy. In hysteria, the individual fully believes that his extremity is paralyzed, that his arm and leg are useless, as in the organically affected; and oftentimes it is, especially where a monoplegia exists, that sensory losses—anesthesia—is an associated factor. Strange to say, however, individual muscles are never paralyzed, the entire segments of the extremity being equally involved; whereas, it is well known in organic lesions, the distal portions are the parts always the more involved, the proximal parts suffering less from the spastic changes. Again, wonderful to relate, in those cases suffering from the functional hemiplegic state, in which sensory phenomena may or may not be associated with motor weakness or loss, the lower quadrant of the face on the affected side is never weakened; a true Bell's palsy is never seen; and the tongue, if implicated, curves or deviates, not to the affected side as is the case in organic hemiplegia in which the motor fibres to the tongue are involved, but to the opposite or sound side. Here, also, we find that the gait only superficially resembles that of organic hemiplegia. Usually the extremity is held in a somewhat stiffened manner; or, if the palsy be of the flaccid type, is dragged

along in walking as though it were helpless and dead, the dorsum of the foot and toes scraping along the ground or floor. Sometimes the limb is shoved in advance of the patient as he walks, in marked contrast to the peculiar side-swing of the truly palsied leg, the so-called scythe-swing which one can so readily demonstrate in the true hemiplegic gait. Why this difference of muscular movement occurs can be understood when we recall that in organic paralysis, as before mentioned, the distal parts of an affected extremity are more involved than are the proximal; hence, the swing of the palsied leg depends largely on the muscular contraction of the weakened hip muscles. In contrast to this we find in hysteria that the musculature of an affected extremity is equally involved, there being no appreciable difference between the distal and proximal weakness. Further examination of the involved extremities reveals the preservation of the deep or tendon reflexes; they are never lost in the hysteric, but may be concealed or diminished by contractures if any be present. Muscular wasting may have occurred, due, not to trophic changes but to disuse. Electrical responses are of the normal type, reactions of degeneration being found only where organic changes in some portion of the spino-muscular pathway have taken place, a condition never found in the hysterical state, and, needless to say, one which cannot be produced by simulation. In other words, if muscular atrophy be present, it is always unassociated with electrical changes indicative of nerve degeneration.

In those cases resembling the spastic state, a spurious or pseudo-patellar or pseudo-ankle clonus can often be elicited, a clonus which is not the sustained clonus of an organic lesion and is one in which extensor toe phenomena are never associated. While it is true that some of the pathologic toe signs, always indicative of organic irritation or disease along some parts of the leg fibres of the corticospinal pathway, may be simulated by an hysterical patient in whose presence the subject has been discussed or who has been coached by some unscrupulous physician, still it is well to remember that

usually in the organic state more than one extensor toe sign can be elicited in a given case and the likelihood of a patient being familiar with more than one sign, usually the Babinski, is highly improbable. Therefore its always well in a case where simulation is suspected for the examiner to run the entire series of tests, conscious of the fact that the patient can scarcely be cognizant of all the methods now in use, and his ability to simulate all known pathologic toe signs is therefore highly improbable.

TABLE 3

Motor Phenomena Characteristic of Functional Paralysis:

1. Paralysis may be flaccid or pseudo spastic.
2. Segments of extremity are equally affected.
3. Reflexes never lost, but may be diminished or concealed if contracture is present.
4. A false or spurious clonus may be present.
5. Associated movements are absent.
6. Atrophy only from disuse.
7. Normal electrical reactions.
8. Extensor or pathologic toe signs never present unless simulated.

If we bear in mind the fact that lesions involving the spinomuscular pathway produce very definite clinical symptoms which are impossible of willful reproduction on the part of the patient, the likelihood of error as to whether a motor palsy is organic or functional, in a given instance, is reduced to the zero point. For instance, try as hard as he may, the hysteric cannot simulate the trophic changes of a bed sore with its sloughing base, or the sphincter paralysis following a spinal cord lesion. True, suggestion on the part of someone may be sufficient to cause the voluntary passing of urine and feces or even self-inflicted wounds with resultant secondary infection may grossly resemble trophic sores, but the involuntary phenomena, resulting from organic changes, are, needless to say, never met with in the hysterical state. On the other hand, lesions involving the corticospinal pathway, while giving origin to just as definite a group of clinical symptoms, nevertheless, lend themselves more readily to a spurious reproduction by the hysteric, and as such, to the untrained, may seem to be really due to structural, rather than to functional, changes. Likewise, it behooves the examiner ever to be on the lookout for a combination of organic and functional symptoms

occurring in the same individual, for it has been demonstrated, time after time, that an hysterical state can be readily grafted on a previously existing organic disease, provided of course the patient has the essential "make-up" in his nerve soil so necessary for the growth of the seed of suggestion.

It may not be out of place to make reference here to something which every examiner, of any experience at all, has noted in coming in contact with persons suffering from injuries, real and alleged. I refer to the attitude which the patient assumes in his endeavor to co-operate with the examining physician. The individual suffering from a true organic lesion, if still in possession of the mental faculties, willingly co-operates to the best of his ability while the examination is in progress. Without exception this is the universal rule. Likewise the hysteric, if uncontaminated by the polluting influence which is usually secondary to the hope of monetary gain, usually enters into the spirit of the examination in a whole hearted manner. In fact the willingness of such a patient to undergo examination oftentimes unconsciously influences the physician to believe that such a person is actually suffering from a lesion producing results which seem to be permanent in character. If, however, after many examinations by his local physician, perhaps augmented by counsel from a specialist, the symptoms of the patient seem to become accentuated, perhaps savoring of certain evidence seemingly pointing to reactions pathologic in character, such are not to be wondered at when we know that underlying the whole array of nervous symptoms is a mechanism which is "pathologically vulnerable to suggestion." True the hope of monetary reward often keeps alive the smouldering embers of the hysteric's symptoms, or fans them at times into a furious flame, or even causes him loudly to bemoan his fate; but experience has amply shown that, time after time, the hope of financial gain is entirely absent and has nothing to do with the symptoms presented by the hysteric. On the other hand, the attitude maintained by the malingerer, is, from the very beginning, one which should arouse

the examiner's suspicion, for here the whole atmosphere usually teems with resentment and the patient, on the defensive from the start, oftentimes is unusually loud in his denunciations of the examiner and of the abuse to which he is being subjected due to the efforts being made to arrive at a just and scientific conclusion.

Again, when a lower extremity is palsied, either organically or functionally, tests, other than those already mentioned, are still at our disposal to aid in elucidating the diagnostic enigma thus presented. When the paralysis is organic, Babinski's combined flexion of the hip and trunk phenomenon may be of especial help. To elicit this, the patient is caused to lie flat on his back on a firm, smooth surface with his arms folded across his chest and his lower extremities extended and separated. The examiner then asks the patient to assume the sitting posture without using the arms as aids. A compliance to this causes the organically paralyzed lower extremity to become flexed at the hip and its heel raised in the air. In counter-distinction, the heel of the non-paralytic extremity becomes firmly pressed against its supporting surface while the shoulder on the unaffected side is carried forward so as to counter poise the contralateral elevated paralytic lower limb. Needless to state, in hysterical hemiplegia, this sign is absent, the functionally paralyzed limb remaining unraised while the shoulders come forward in equal fashion as the trunk is flexed on the hips.

Another very useful adjuvant to neurologic diagnosis is that of Hoover's sign.⁴ In 1908, C. F. Hoover of Cleveland, described a new sign for the detection of malingering and functional paresis of the lower extremities. Hoover observed that if a normal person, lying in a dorsal position, attempted to lift one of the lower extremities while extended, the heel of the opposite extremity tended to be forced downward in an endeavor to counterbalance the lifting effort expended in the elevation of the opposite leg. If the hand of the observer was placed beneath the Achilles tendon of one extremity and the opposite leg elevated while ex-

tended, it was found that the muscular resistance offered by the passive extremity equaled that necessary to elevate the opposite leg. In patients suffering from organic motor paresis of one lower extremity, it was found, when effort was made to elevate the extended and palsied member, that the opposite and unaffected leg made counterpressure downward, whether or not any voluntary muscular strength was exhibited on the affected side. When the paralysis was of an hysterical nature, certain very marked departures from these findings took place. When the non-affected leg was elevated, a downward thrust of the heel of the functionally paralyzed limb was plainly felt against the examiner's hand; whereas, apparent attempts to elevate the paretic leg were fruitless, and, strange to say, were not accompanied by any appreciable downward thrust by the normal heel.

Realizing the value of Hoover's observations, and believing that considerable confusion no doubt arose at times owing to the fact that no visible means was at hand whereby the examiner could accurately measure the downward pressure expended by the non-elevated leg, I found, after considerable experimentation, that the use of the sphygmomanometer apparatus could be used with ease in recording the amount of the downward thrust by the passive limb, thus removing all uncertainty as to any difference of pressure that might exist between the two extremities.⁵ In making the test the following procedure is essential:

The patient is caused to lie flat on his back with the lower extremities extended. The arm band of the sphygmomanometer apparatus is then placed under one heel, and, after the recording dial has been attached, air is introduced. In order to obviate the possibility of the calf muscles coming in contact with the bed, couch or extended chair, usually a book or other firm object is placed beneath the arm band to elevate the leg sufficiently. The air pressure in the arm band is now increased until the upper and lower surfaces of the cuff are separated to such an extent that downward pressure with the heel will not bring the two surfaces

into apposition, thus assuring that the heel will always be resting on an air cushion. The amount of air necessary to bring this about is usually found to be sufficient for adults when the recording hand of the instrument reaches 30 mm. With the heel resting on the air cushion, the leg entirely free from contact with the bed, and the starting point on the dial observed, the patient is instructed to raise the opposite leg, **while keeping the extremity extended**, to an angle of about forty-five degrees with the body. The maximum excursion of the recording hand, particularly the point at which the downward pressure of the heel sustains the hand, is then noted. Usually it is well to repeat the test a time or two to make sure that the readings show no great variation. Variations will sometimes occur if the patient does not fully relax the muscles of the extremity to be elevated. Especially will variation occur if the elevated limb is not kept extended while raised to such an angle—usually 45 degrees—as to force the expenditure of much muscular action in overcoming the force of gravitation. After the reading has been taken on one side, the air cushion is placed beneath the opposite heel. Here, for several reasons, the starting point may be found different than was the one used in trying out for the first set of readings. If too low, more air is introduced; if too high, the release valve is opened and sufficient air allowed to escape until the starting point is uniform. In normal persons, i. e., when no paralysis of the extremities exists, the readings on the two sides are, for all practical purposes, one and the same, clearly demonstrating that Hoover was correct when he asserted that an equal amount of pressure was made downward by the non-active leg as was necessary to elevate the active limb.

In cases of organic motor paralysis of a lower extremity, it is usually best first to test out the non-affected leg by resting the heel of the palsied extremity on the air cushion while the normal extremity is voluntarily caused to be elevated. The procedure is then reversed, and the readings compared. Differences will occur in the readings large-

ly in proportion to the extent of the paralysis. Owing to the patient's inability to fix the hip muscles on the affected side, the downward thrust by the palsied member will be reduced, whereas, elevation of the paretic limb will invariably cause a great downward thrust by the sound heel, with a correspondingly higher reading. Where the paralysis is slight or partial, the variation between the readings is correspondingly decreased, whereas, almost total or complete paralysis will produce the greater variance, due to the fact that the patient will unconsciously fix the muscles of the sound extremity in an honest endeavor to raise the paralytic limb, thus producing the maximum downward pressure by the sound heel.

The perverted use of the sphygmomanometer, if I may so use the expression, thus far has been described in demonstrating the equality of the contralateral pressure in normal individuals, and the inequality which exists when one extremity is organically paralyzed.⁶ The greatest advantage, perhaps, comes in its use as an objective means of proving the existence of a functionally palsied leg. Quite naturally the hysteric willingly elevates the sound limb when so directed, but in so doing he unconsciously makes a counter thrust downward by the heel of the affected side. When directed to elevate the palsied extremity, however, no fixation of the muscles occurs in the sound limb, with the result that but the slightest downward thrust, appreciable only by a meager movement of the recording hand on the air gauge, takes place. In fact, quite commonly the patient, in his endeavor to apparently comply with the examiner's demands that the paralytic leg be raised, elevates slightly the non-affected extremity, thus producing a minus reading. While to Hoover belongs the credit of first calling the profession's attention to differences in complementary thrusts between organic and functionally paralyzed lower extremities, still the use of the sphygmomanometer as just described offers a demonstrative method which is simple, accurate, reliable, and one in which objective evidence may be made a matter of court record in those cases where

legal procedure becomes the order of the day.

I have purposely refrained from entering into a discussion involving the phenomena presented by the special senses—auditory, visual, smell, and taste—by the various viscera, and by those due purely to the psyche, in this consideration of hysteria as a clinical entity; to do so would lead one too far astray and time does not permit. Suffice it to say, in passing, that the presentation of phenomena referable to these fields oftentimes calls for careful and painstaking endeavor on the part of the examiner in bringing about their elicitation and proper evaluation. I have merely attempted here to bring before you what appeals to me as some of the more important fundamental truths concerning our present day knowledge of the nervous system of man in its relationship to organic and functional diseases. If I have done so, without bringing my listeners to the point of physical and mental weariness, my object will have been accomplished.

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SAFE

"It is highly probable," states Professor Moulton, "that the earth will continue to revolve about the sun and be in a condition suitable for the abode of the higher forms of life for hundreds of millions of years. Its ultimate destruction, however, is likewise highly probable. When our sun passes again near another sun, the planets which revolve about it at present will probably be utterly destroyed and scattered along the arms of a new spiral nebula, to be swept up and become parts of a new generation of planets."—Dearborn Independent.

THWARTED

"There was a young lady whose dream
Was to feed a black cat on whipped cream;
But the first cat she found
Spilled the cream on the ground,
So she fed a whipped cat on black cream."

—California and Western Medicine.

NON-MEDICAL TREATMENT OF MENTAL DISORDERS*

ROBERT P. SMITH, M.D.

Medical Officer Expert, United States Veterans Hospital No. 86

SHERIDAN, WYOMING

In presenting a paper under the above caption, no reference will be made to mental disorders from syphilis, focal infections or pathologic organs. Statements made herein are not intended to take the place entirely of medicine or surgery. The methods of treatment included under this term, however, are valuable when intelligently used in connection with other curative agents. This article, while showing some enthusiasm, will have no monopoly, as many instances are recorded in the history of medicine where both physicians and surgeons advanced claims that would not stand the test of daily practice. It is generally acknowledged during the past few years that far less medicine is prescribed than formerly. The amount of drugs used by physicians appears to be diminishing yearly, and it is a well known fact that specifics can be counted on the fingers of one hand. Surgery likewise has become more conservative. Whereas a few years ago surgeons would operate on the slightest provocation, today operators of high class only proceed for a definite reason and when the necessity for such procedure is an established fact. In the treatment of mental disorders usually found in psychotic hospitals, the specialist today realizes that **water, work and diversion** are the only dependable agencies at our disposal to re-educate the abnormal mind, and endeavor to restore, or approach something near the normality of the original individual.

Realizing that this paper is being read to a class of physicians composed probably of 98 per cent general practitioners, I will attempt to explain a few facts that to the specialist would appear elementary. To the psychiatrists present, therefore, I apologize, and ask their indulgence, in hopes that some practical statements may be made herein to assist the larger class of medical men who, after all, are the backbone of the profession.

*Read before the annual meeting of the Wyoming State Medical Society, Buffalo, Wyoming, June 22-23, 1925.

Group No. 1: Here we find cases in which the only departure from the normal is inability to find easy and agreeable employment. In this group are also found individuals who show an aversion for any task, and who follow the line of least resistance. These we term psychopaths, as their inherent psychological makeup is so deficient that any unusual stress causes inadequate response. Psychopathic individuals frequently take refuge behind vague nervous or mental complaints, as an excuse for inability to work. They will therefore accept gladly agreeable treatment such as physiotherapy, massage or occupational therapy. It is just such cases that make possible chiropractors, osteopathy, suggestive therapeutics, Christian Science and the like. To tell people coldly there is nothing wrong with them does not satisfy. They firmly believe they are sick, hence they are, because their judgment and insight are abnormal. We must therefore attempt to re-educate such persons and change their view by some method, whereby no opportunity is given them to enjoy ill health, nor in any way make an asset of chronic invalidism of purely psychogenic origin.

Group No. 2: These are primarily caused by mental conflicts between the individual's normal personality and a painful mental complex. Some remote illness or injury may serve as a convenient peg upon which to hang a whole train of subjective complaints. Therefore the patient develops a complex as a subconscious way out of a distressing difficulty. Based on this complex there arises conflicts between the conscious and subconscious, resulting in errors of adjustment to environment, and unsatisfactory domestic, social and economic conditions. As a result of an ineffectual struggle between the individual desires and his achievements, conduct disorders occur, resulting in necessary hospitalization, where proper equipment is available. On reception in our hospitals, a thorough physical, mental, neurological, laboratory and x-ray examination is made.

Finding no organic pathology in existence, no specific, and no system of therapeutics can be employed. It therefore becomes the primary necessity to obtain the confidence of the patient to secure cooperation in order to assist in making a readjustment. Should periods of excitement or agitation occur, we no longer use drugs for relief. The continuous bath has been found far more effective, humane and lasting in effect and is without after results. Here the patient is carefully laid in a canvass swing with a rubber pillow as head rest, and submerged in a tub of water at a temperature of about 96 degrees. Here he is kept from an hour to twenty-four, until he becomes quiet and, as often happens, secures a much needed sleep. The much larger number we find require no such measures. We, therefore, begin to employ some means to assist our patients to attain the highest possible condition of physical and mental stability. It is at this stage that we use the physiotherapy department with its electrotherapy, hydrotherapy and massage. Physiotherapy alone will not relieve these disorders, but it establishes in the conscious or subconscious mind the suggestion that something is being done for him, and that suggestion is essential to success. It creates in his mind the realization that some one is interested in him—that he is not a discard. When once his interest in himself and his surroundings are obtained, we have secured the rooting of a valuable and delicate plant, called "**Confidence**", that will enable us to continue our progress toward the goal of normality. With the establishment of confidence two powerful factors become available—suggestion and persuasion. Both are of assistance in re-educating and controlling the mind, and are factors in determining action and belief.

Our next step is to train the patient so that he may resume a normal method of living and to interest him in some type of work within his capacity. It is here that occupational therapy becomes invaluable, as by it we hinder mental deterioration and aid in restoring the mind toward normality, which has been out of contact with its surroundings. Just here good judgment on the part of the physician will spell success, and poor

judgment, failure. It has long been established that no man succeeds in a vocation he dislikes. It therefore becomes necessary to study the patient's past history, and wherein he succeeded best. In assigning him for occupational therapy our success will be greatly enhanced by selecting work that is agreeable to the patient or nearest approaches his desires. It is very important, however, that some task be selected for his diversion and imperative that the lesson once begun shall be completed. It is often amazing to note the surprise of the patient that he can construct anything, having firmly convinced himself previously that his usefulness on earth had ceased. There are few patients indeed whose interest cannot be secured in something with a large list of available occupations to select from, such as weaving, rug making, reed and cane crafts, wood working, mowing and taking care of lawns, agricultural projects, carpentry, plumbing and garage work. For recreation we supply setting up exercises, baseball, tennis, bowling alley, quoits, moving pictures, entertainments and books.

The present day treatment of mental disorders is very distinctly the opposite of that supplied in former years by state hospitals, wherein domiciliary care was supplied and the patients permitted to sit around and literally rust out mentally and physically. Vitality of neither the mind nor the body can be maintained if permitted to atrophy from disuse. It is better a patient do poor work than none at all, but his work should be useful and he should be shown what use it is. Self-confidence toward nature comes with skill in making a box, hitting a mark, or building a canoe, that competition with fellow beings is still possible.

Psychology of Occupation

It must be remembered that usually the emotions are profoundly disturbed. The patient is depressed, elated or apathetic. The power of attention, both spontaneous and voluntary, are dependent upon the emotion. We can therefore best help by training the attention. Attention can only be secured by arousing interest in something which we must seek out and attain. Each patient must at all times be handled individually.

Group treatment, until properly placed, will not mean success. When attention is once secured care must be used to prevent fatigue, remembering that his power of fixing attention is weak and must not be continued long at a lesson. The primary purpose of occupation may be said to be to divert the patient's attention from unpleasant subjects and direct his thoughts into more healthy channels. The mechanism of recovery may be summed up by the word **substitution**, or, if one prefers, **replacement**. Sometimes watching a baseball game arouses his first interest. His desire to have the home team make the winning run may drive out the depressed idea, and be replaced by baseball. Other interests may be supplied from time to time until at last he can voluntarily drive out depressive thoughts without assistance.

It should be remembered that this is a day of specialty and no physician should attempt to treat a mental case without experience; first, because of lack of confidence in himself, which the patient soon detects; and, second, lack of physical equipment necessary to secure continued results and retain the mental control in healthy channels when once obtained. A warning to the general practitioner here seems appropriate. Never attempt to treat a psychotic in his home or surrounded by his family. Such efforts will be wasted and your professional skill or judgment gravely questioned when at last the hospital becomes inevitable.

The Veterans' Bureau hospitals are today supplying the ways and means of treating psychotic cases such as the world never before witnessed. From a medical viewpoint our percentage of what might be called cures may be small, but our successes in re-educating and readjusting the abnormal mind sufficient to restore to their families are quite large. To be able to discharge as "greatly improved," converts at least the mentally sick from the liability column to an asset.

I am indebted to Dr. B. W. Carr, of the Central Office, Veterans' Bureau, Washington, D. C., for many reports and statistics on physio-therapy and occupational therapy as applied in the government hospitals, with

its successes and failures. Dr. Carr is a great enthusiast in the treatment of both organic and functional disorders by what he terms "the use of natural forces, such as light, heat, water and habit training," as applied by occupational therapy. Personally I am a great advocate of his school, and am not too proud to acknowledge that the medical profession, until the past few years, has permitted the charlatan to steal our ammunition and capitalize it. Unfortunately many of the physicians of the past have concluded it would be quackery to treat other than with pills and powders. Many of these same medical men, however, realizing that the supposed illness was merely a disordered judgment or imagination (if you best like the term), have prescribed bread pills with considerable success. This was not quackery; it was suggestion; and what matters after all the nature of the treatment, if it benefits or cures the supposed sick? The medical profession has no quarrel with any healer who applies his treatment scientifically and is qualified. We only take exception to laying of claims that are physically or mentally impossible, and tend thereby to mislead the public by ignorant or dishonest methods of financial robbery.

Criticism may be made by the psychiatrists to the group first mentioned in this paper. From our viewpoint it is true many of them would not be classified as incompetent legally, or irresponsible. However, for all practical purposes these men are not self-sustaining. They are in reality border line psychotics, lacking insight, judgment, control under stress, and they seek the line of least resistance under the slightest provocation, which, to their inherent inadequacy, is an intolerable situation, but to the normal mind, is a part of the day's work. In conclusion therefore let us remember we are behaviorists, and for success must study each individual case to determine his reaction, as no two are exactly alike. By conscientious and persistent application of the various methods, I have briefly attempted to outline, many such cases, formerly discarded as hopeless, will be re-educated and returned to civil life as at least partially self-sustaining.

EARLY MEDICAL HISTORY OF WYOMING

A. B. HAMILTON, M. D.,
LARAMIE, WYOMING

Accepting an invitation to write a brief history of medicine in Wyoming, I found it more difficult to secure definite data than I had anticipated. Hence, the incompleteness and perhaps errors in dates.

So far as I can learn no one has made any attempt to compile a history of the pioneers.

The first surgeons coming into what was known then as "the Dakota territory" were army post surgeons. Fort Laramie was the first post established in what is now Wyoming in 1848. Many of these surgeons went into private practice. In 1864 Fort Hallick was established. Dr. J. H. Finfrock was post surgeon. The fort was abandoned in 1866. Dr. Finfrock came to Fort Saunders, and from there to Laramie, being the first physician to open an office in this city and remaining here until 1893.

Perhaps the first men in private practice in the central and northern part of the state were Dr. A. W. Barber and Dr. Wilson. They had their headquarters at Douglas, but their field of operation took them to the Montana line, to Lander and the Yellowstone.

The Union Pacific Railroad running through the southern part of the state, naturally led to more rapid settlement of this part. Cheyenne, Laramie, Rawlins, Rock Springs and Evanston sprang up like "weeds in the spring-time," and naturally physicians came.

I have been unable to get the names of the men who first located in any of these towns, except Dr. J. H. Finfrock of Laramie.

The first medical legislation was had in 1876, requiring registration of diplomas with the county clerk. All the diploma "mills" in the country sent in diplomas by the dozen and had them registered, so they could sell perfectly good registered diplomas. There were about one thousand such papers registered in the different counties. Fortunately few of these diplomas came back into the state. Colorado got more of them than any other state.

The first attempt to form a state medical

society was in 1886. Dr. Magee of Rawlins, Drs. Stevens and Foster of Laramie met in Laramie and made plans to meet in Cheyenne in June. Invitations were sent to all the physicians of the territory. Accordingly these three physicians journeyed to Cheyenne hoping to find at least enough physicians interested to organize a society, but only one other appeared and he was not interested and did not stay to help. No further attempt was made to organize until 1897. Drs. Reed and Levers of Rock Springs, Dr. Geo. P. Johnston of Cheyenne, and Dr. Solier of Evanston decided to try again. They met in Cheyenne and held the first regular state society meeting. Dr. Johnston was made President of the Society.

The second meeting was held at Rock Springs and the third at Laramie, with Dr. Reed as President. At each of these meetings Dr. Reed read papers on mountain fever, giving in detail, symptoms and treatment, but could not give any post mortem findings, as all recovered. At the Laramie meeting he read a paper disapproving all he had said in his previous papers, and was emphatic in saying there was no distinct type of fever known as "mountain fever," but that it was typhoid fever and gave post-mortem findings to prove his change of diagnosis.

Some time in the nineties Dr. Barber published a paper on the successful application of Potassium Permanganate for the relief of rattlesnake bite. This paper was, perhaps, the first published report of the use of this remedy in snake bite.

At this meeting we were favored by three distinguished men from out of the state. Dr. Hall and Dr. Freeman of Denver and Dr. Ralph Waldo Coe of Portland.

In February of the year 1899, our legislature passed a medical practice bill, establishing an examining board, requiring all applicants to pass the board to practice in the state. Dr. Johnston and Dr. Reed discussed the application of the bill.

I am indebted to Drs. Stevens, Johnston and Wyman for much of this history.

PSYCHOPATHOLOGY—INTRODUCTION

LLOYD H. ZIEGLER, A.M., M.D.

Resident Psychiatrist, Colorado Psychopathic Hospital

Recent books on human constitution have taken a somewhat broader view of the person as a whole and have enumerated the anatomic, physiologic, immunologic, and psychologic aspects. If these are the categories of human life there must necessarily be a degree of normality for each which, under ordinary circumstances, enables the individual to get on well. Occasionally also it must happen that there are some persons abnormally constituted in one or several of the above categories. These persons are more prone to disease. Disease seems to be a product of two large forces, viz., constitutional resistance on the one hand, and stresses and strains on the other. If the stresses and strains (personal worries, intolerable situations, infections, etc.,) are great enough the sturdiest person will ultimately succumb to disease.

Pathologic anatomy, because of its concrete tangible nature, has been the most fruitful concept of medicine. But structure cannot well exist without function and so pathologic physiology gradually came to be formulated in the conquest of disease. Since the advent of Louis Pasteur, the abnormal variations in immune bodies have received much study and as a result whole armies have been saved from the ravages of disease. Psychopathology is less tangible than any of the foregoing. It is relative and arbitrary. It is more or less determined by the customs of the community or the era. What may seem abnormal behavior to one race of men may be an approved form of religious worship to another, or a dreadful taboo to still another². And what was a common practice two hundred years ago in the same locality would be looked upon today with incredible misgiving. As an example we need only to turn to the history of witchcraft.

To further illustrate the relativity of psychopathology the following case is cited: There developed insidiously in a well meaning man a marked tendency to argue legal

matters and to feel that his rights were subtly being infringed upon. This was considered as merely a sign of intellectual attainment in a backward part of the country where he lived for many years. The same man with the same ideas removed to an intellectual center was soon disposed of in a psychopathic hospital as a litigious paranoiac. To further illustrate the relative nature of psychopathology, it sometimes occurs that a patient is brought to a psychopathic hospital by a relative who has more mental disease than the supposed patient.

The evanescent, relative, and flexible nature of psychopathology has been exploited in recent years to explain many crimes and irresponsibility. This alone makes the subject one of the most vital of our age from the standpoint of governmental and social stability.

To create definite psychopathologic standards has been difficult, due to the heterogeneous nature of populations, interests, climate, resources, etc., over the world. A series of simple reactions of the individual as a whole that cause discomfort or threaten his life, or seriously interfere with his social and economic adjustment will be presented in future issues under the title of psychopathology in order to make clear certain deviations from the normal in some of the simplest things of life.

THE DOCTOR

"Where will you find another man to match the average doctor? He lives the true altruistic life, devoting himself unreservedly to others. His skill and time are yours on the shortest notice, in the blackest hour of night and in the worst weather. His devoted unselfishness, ready sympathy and healthy good humor but increase his gray hairs."—Hon. Alton B. Parker, *Eclectic Medical Journal*.

Dr. A. Besredka, a Russian scientist working at the Pasteur Institute in Paris discovered that deadly germs may be entirely harmless if planted in tissue on which they are not accustomed to prey.

A new x-ray machine, in which the photographic plate is exposed only when the heart is quiet between beats, made it possible to take clearer x-ray pictures of conditions in the lungs, was developed at the University of Pennsylvania.

¹Draper, *Human Constitution*.

²Frazer—*Psyche's Task*, also *Golden Bough*.

SYSTOLE

He who always complains of the clouds, receives little of life's sunshine and deserves less.—Anon.

He is a man of sense who does not grieve for what he has not but rejoices in what he has.—Epictetus.

Some people are always grumbling because roses have thorns—I am thankful that thorns have roses.—Anon.

One who is contented with what he has done will never become famous for what he will do. He has lain down to die. The grass is already growing over him.—Bovee.

Religion, Society and Nature: These are the three struggles of man. They constitute at the same time his three needs. He has need of a faith: hence the temple. He must create; hence the city. He must live; hence the plow and the ship. But these three solutions comprise three perpetual conflicts. The mysterious difficulty of life results from all three.—Hugo.

The field in which I may work is narrow; but it stretches before me limitless. The occupations I can engage in are few, but into each one I can throw my whole strength. Opportunities to be of service to others offer themselves constantly and every day, every hour calls even on me for a timely action. It bewilders me to think of the countless tasks that may be mine.—Helen Keller.

Men in great place are thrice servants—servants of the sovereign or state, servants of fame, and servants of business; so as they have no freedom, neither in their persons nor in their actions, nor in their times. It is a strange desire to seek power and to lose liberty; or to seek power over others and to lose power over one's self. The rising unto place is laborious, and by pains men come to greater pains and it is sometimes base, and by indignities men come to dignities.—Bacon.

DIASTOLE

If cats don't got to heaven where do the angels get the harp strings?

They got twins up to sister's, one's a boy and one's a girl, so I'm uncle and an aunt.

Jakey: How was the fire in your place yesterday?

Ikey: Ssh, that was not yesterday, that was next week.

First Pre-Volsteadite: Watch your driving, man, you'll run us in the ditch.

Second Pre-Volsteadite: Who, me, why, I thought you were driving.

The small boy was crying lustily: "Why," asked the passer-by? "Ma just drowned the kitten." "That's too bad, I am sorry." "Yes, she promised I could do it."

Pensive small boy: "Mother, do gooseberries have legs?" "Of course not, why?"

P. S. B.: "Then, mother, I think it must have been a caterpillar I swallowed."

Wife: What did you use to open that can of peaches?

Hubby: A can-opener, of course. Why?

Wife: From the fragments of language I heard I thought you were opening it with prayer.

Write Your Own Caption

Patient with scabies: My other doctor told me it would take two hundred treatments to cure this disease, its very stubborn.

M. D.: Who was your doctor?

Patient: Dr. S., the chiropractor.

He Guest (to a late arrival, also male): My aren't women fickle. That pretty woman over by the piano has been flirting with me for fifteen minutes and now she won't even look at me.

Late Arrival: I just came in. She is my wife.

NEWS NOTES

Dr. R. J. Groom of Boulder announces a change in office to the First National Bank Building of that city.

Dr. Arnold Minnig of Denver has recently changed his offices to 814 Majestic Building.

Dr. R. C. Boyd of Denver is now located at suite 320, Empire Building.

The editor is in receipt of a card with a foreign stamp from Dr. G. H. Ashley, formerly of Denver. The inference is that Dr. Ashley is making an extensive European tour.

Dr. Alice B. Guthrie of Denver has recently changed her offices from the Commonwealth to the Mack Building.

A million-dollar campaign is to be launched throughout the country on January 12 in behalf of the Jewish Consumptives' Relief Society of Denver.

Dr. Robert Levy left Denver November 6th, 1925, and has taken an extensive journey through the various countries of South America. His frequent cards to members of the profession have been much appreciated. He will return Monday, January 18th.

Dr. James Rae Arneill has recently and joyfully entered the list of grandfathers among Denver physicians.

Dr. Frank Kenney is just convalescing from a rather severe illness. His convalescence is good and a complete and speedy recovery is expected.

Dr. Casper Hegner has just returned from an extensive tour throughout Europe.

Dr. S. A. Joslyn who has been sick for the past two weeks is now able to be about again.

Dr. W. A. Kickland and Dr. P. J. McHugh spent the Christmas holidays in southern California. While there Dr. McHugh spoke before the Riverside Medical Society.

The January meeting of the Larimer County Medical Society was poorly attended, due to weather conditions, but those present were greatly pleased with the paper read by Dr. Arneil of Denver on "Goitre and Its Relation to Cardiac Disease".

Dr. T. J. Swisher and wife of Rawlins, Wyo., left the latter part of December to join the Clark cruise around the world, leaving New York January 20. Upon arrival at Naples they expect to spend four months in Europe, returning to the United States about September 15. Dr. Swisher has been, for years, one of the leading practitioners in southwestern Wyoming and the profession extend the kindest wishes to him on his vacation which he so justly deserves.

Dr. W. A. Steffen of Sheridan left during the holidays to visit his parents in Huntington, Ind. After the first of the year he expects to put in a month visiting the clinics in Chicago, St. Louis and Rochester, Minn., returning to Sheridan about the first of February. Dr. Steffen has been practicing in Sheridan for about twenty years.

Dr. V. J. Keating and family of Sheridan went to Chicago for the holidays where Dr. Keating expects to do graduate work. The doctor's health has not been good for the past year, and the rest will undoubtedly be appreciated.

The doctors and dentists of Sheridan remembered the nursing staff of the Sheridan Memorial Hospital with a Christmas gift in the way of furnishings for the nurses' home.

DR. I. W. BLAKE

Dr. I. W. Blake of Buffalo, Wyo., Vice President of the Wyoming State Medical Society, died at Kansas City, Mo., January 6, 1926.

No formal biography would fit this announcement.

For twenty years the writer has known Dr. Blake in a very personal way. No one in his acquaintance, among the Wyoming doctors was more loved, respected and trusted by the members of the profession and by his home people than Dr. Blake.

He was a type rarely seen today. A highly educated man, not only in general medicine but in all that goes to make a man of the world. Loved by the people of Buffalo and northern Wyoming as few men ever have been; devoted to his profession and yet a great nature lover.

He knew the Big Horn Mountains, the bad lands of the Powder River and the Rocky Mountains as few men knew them.

A few years ago while on a hunting trip with a young friend he met with a terrible accident. Few men ever would have survived what he went through.

Climbing up into a tree to get a better view, his companion mistook his left arm for that of a bear and shot and shattered it. Miles and miles away from help he instructed the terrified young man what to do to stop the hemorrhages and then through months, yes years, bore up under operation after operation to try to regain some use of his hand and arm. What he suffered few know, yet during it all he was the same lovable family doctor.

When the State Society met at Buffalo last year he and his good wife did more than all the rest put together to make that meeting a success and to make the visitors feel at home.

No, he is not dead. He will never die because God cannot spare such men. He has only gone on one of his delightful hunting trips, up in the Big Horn Mountains where he loved to roam and enjoy nature.

The little children in Buffalo as well as the older ones some day hope to see him return. It will not be here, but some day we hope to meet him. And if there is in heaven a more beautiful place than his beloved Big Horns, there may his spirit rest.

EARL WHEDON.

PRESBYTERIAN HOSPITAL

Anticipating the early opening of the Presbyterian Hospital in Denver, the Board of Hospital Managers at its last meeting adopted and announced its permanent policy as to the management of his hospital.

The rules adopted for membership on its medical staff are in accordance with the standards prescribed by all first class hospitals in the United States, including, contrary to some unauthorized statements that have been made, "evidence of qualifications which would entitle the applicant to membership in the Medical Society of Denver, or in his local society, if a non-resident"; and also, "evidence of post graduate experience in operative technique satisfactory to the Board of Managers, if he seeks the privileges of the operating department, except as an assistant."

Yours very truly,
F. A. WILLIAMS, Secy.

MEDICAL SOCIETIES

NORTHEAST MEDICAL SOCIETY

The Northeast Colorado Medical Society held its annual meeting for the election of officers and banquet Thursday evening, January 14th. The following officers were elected: Dr. J. H. Kellogg, Sterling, president; F. M. Means, Holyoke, vice president; E. P. Hummel, Sterling, secretary-treasurer; F. A. Alcorn, Haxtun, delegate to State Society; E. P. Hummel, alternate; F. G. Dutton, Julesburg, censor.

The annual banquet was served at the Hotel Graham and at 7:30 twenty-six guests sat down to a four-course turkey dinner served in the fine Graham way.

After the dinner, Dr. Alcorn of Haxtun, the retiring president, acted as toastmaster and the guests were entertained by Mrs. F. E. Palmer in solo with two very pleasing numbers. This was followed by a playette presented in a very entertaining manner by students from the dramatic class of the high school under the direction of Miss Bookman. The toastmaster then introduced the guest of the evening, Dr. Rudolph Arnd of Denver who presented the subject of Gall Bladder Conditions illustrated by many x-ray plates. This subject was presented in a very thorough and painstaking way and was well received and elicited quite free discussion.

E. P. HUMMEL.

LARIMER COUNTY

I am inclosing a few notes concerning the members of the Larimer County Medical Society which I thought might be of interest.

1. At the annual meeting of the Larimer County Medical Society, held in December, the following officers were elected:

President	Dr. J. D. Carey
Vice-President	Dr. R. W. Morrish
Secretary	Dr. F. A. Humphrey
Treasurer	Dr. V. E. Cram
Trustee	Dr. E. L. Morrill
Delegate	Dr. T. C. Taylor
Alternate	Dr. W. B. Hardesty

Dr. P. J. McHugh then gave an excellent paper on "Diabetes and Its Treatment with Insulin."

F. A. HUMPHREY, Secretary.

DELTA COUNTY

The January meeting of the Delta County Medical Society was held at Hotchkiss, Friday evening, January 15th; Dr. and Mrs. Copeland entertained the Society.

Members present were Dr. Hick, President, presiding; Drs. Hazlett, Erich, Lewis, Cleland, Myers, Bast, Copeland, McArthur, C. H. Burgin, Smith, and one visitor, F. L. Beckley, D.D.S., of Hotchkiss.

Reading of the minutes of the last meeting. It was moved by Lewis, and second by McArthur, that the same officers be re-elected for 1926 and the Secretary cast the ballot. It was unanimously adopted. Officers for 1926:

Dr. L. A. Hick, President.

Dr. H. W. Hazlett, Vice-President.

Dr. H. A. Smith, Secretary-Treasurer.

Dr. Smith, Delegate; Dr. McClanahan, First Alternate; Dr. Hick, Second Alternate; paper by Dr. Lewis on "Influenza"; Paper by Dr. Smith on

"Sinus Infections" and report of a case in a baby in which the maxillary sinus, right, was found infected when the baby was fourteen days of age; operated on through the canine fossa when eighteen days of age. Recovery.

Next meeting to be held in Delta; subject, "Heart" and presentation of cases by everyone. A vote of thanks from the Society was given Dr. and Mrs. Copeland for the evening's entertainment. Adjournment.

HARRY A. SMITH, M.D., Secy.

NATRONA COUNTY WYOMING

The Natrona County Medical Society elected the following officers for 1926. Dr. V. R. Dacken, President, presiding.

President	Dr. T. J. Riach
Vice President	Dr. J. R. Hansard
Secretary-Treasurer	Dr. N. J. Nolan
Censor	Dr. C. H. Platz

Delegates to the State Meeting:

Dr. H. L. Harvey, Dr. W. W. Yates, Dr. E. E. Dale.

Alternates:

Dr. J. C. Kamp, Dr. V. R. Dacken, Dr. A. P. Kimball.

Corresponding Secretary, Dr. H. L. Harvey.

This is one of the strongest societies in the State and undoubtedly will have a large delegation present at the Lander meeting in July.

HERBERT L. HARVEY, M. D.,

Corresponding Secretary.

CITY AND COUNTY OF DENVER

The annual meeting of the Medical Society of the City and County of Denver was held in the Assembly Room of the Metropolitan Building on January 5, 1926.

The important events of the evening were the address of the President, Dr. Clinton G. Hickey, and the annual election of officers.

The subject of Dr. Hickey's address was "Idealism in Medicine", and summarized the impressions of a physician who had faithfully and conscientiously, with Christian fortitude and forbearance, attended upon the ills of the public for nearly half a century. The address was orderly and timely, and exceptionally well received by the large audience.

The annual election of officers resulted as follows:

President: Dr. S. D. Van Meter.

Vice President: Dr. George W. Miel.

Secretary: Dr. Louis Sams.

Treasurer: Dr. H. W. Stuver.

Board of Trustees, one member—Dr. T. E. Carmody.

Board of Censors, one member—Dr. George B. Packard, Jr.

The following Delegates and Alternates to the State Society for 1926-1927 were elected:

Delegates	Alternates
W. H. Halley	H. S. Finney
G. P. Lingenfelter	W. E. Sunderland
L. V. Sams	W. H. Crisp
O. S. Fowler	W. W. Williams
C. F. Kemper	G. M. Blickensderfer
H. W. Stuver	George Miel
C. G. Hickey	Melville Black
L. M. Van Meter	C. N. Meader
M. J. Gale	C. T. Burnett
L. C. Cook	C. H. Darrow
M. M. George	L. W. Frank
W. C. Finnoff	G. L. Monson

L. V. Sams, Secretary

COLORADO GENERAL HOSPITAL

In spite of the Christmas and New Year season the attendance in this institution reached the highest peak since its existence. While other hospitals were showing a decided drop in the number of patients admitted and remaining this was not true here. Every attempt was made to make the stay of the patients during the holidays as joyous as possible, and these efforts were greatly aided by the numerous outside agencies who contribute so much on such occasions in time, effort and gifts. All the employees connected with the institution were guests at a Christmas party which was very much enjoyed, especially by the children.

The office of the Superintendent has given out the following data. This compared with previous months shows the steady maintenance or growth in the hospital activities which all concerned are fostering:

Patients in the hospital December 1st.....	70
Patients admitted during the month.....	128
New born (included in the above).....	9
Patients dying during December.....	6
Patients discharged during December.....	111
Patients in hospital January 1, 1926.....	81
Number of hospital patient days.....	2,415
Average number patients per day.....	77.9
Number of counties represented.....	23

Of the patients received were:

Men.....	38
Women.....	52
Children.....	38

A considerable number of these individuals were sent in by various physicians for diagnosis which was furnished and the patient referred back for treatment. As in previous months a considerable percentage pay part or whole of the per diem, but none are denied care because of lack of funds.

What has just been stated about the maintenance of attendance in the hospital also applies to the Out-patient Department. In spite of the inclement weather and the holiday activities the report shows a slight increase over the previous month. The school holidays when of some length always show an increase in child attendance:

Number of new patients for December.....	397
Number of old patients for the month.....	1,908
Total attendance.....	2,305
Daily average new patients.....	15
Total daily average.....	89

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

Christmas festivities entered to a great extent into the activities of those who were compelled to spend the holidays in this institution. The Department of Occupational Therapy was very busy designing and turning out novelties of various kinds made by the patients. These articles ranged all the way from the most simple article to some that showed considerable ingenuity in their construction. What is perhaps of the greatest value is the amount of interest and enthusiasm this work aroused in the patients, stimulating to self-expression which of course was both stimulated and directed by those in charge.

The office of the director has given out the following data for the month of December:

Patients in the hospital December 1st.....	57
Patients admitted during December.....	43
Patients discharged during the month.....	56
Patients in the hospital January 1, 1926.....	44
Number of counties represented.....	11

Out-Patients' Department

Number of new patients for the month.....	48
Total attendance for the month.....	286
Daily average (3 clinics a week).....	22

E. R. MUGRAGE

COLORADO OPHTHALMOLOGICAL SOCIETY

The regular meeting of the Colorado Ophthalmological Society was held in Colorado Springs, Dr. E. R. Neepor presiding.

J. A. Patterson, Colorado Springs, showed a boy aged 8 years, whose left eye had the scar from an attack of dendritic keratitis about nine months previously. The condition had followed a cold. Discussed by W. C. Finnoff, Edward Jackson, and W. H. Crisp.

E. M. Marbourg, Colorado Springs, presented a case of recurrent iritis apparently due to dental infection. During an attack of iritis the patient had had eight teeth extracted, by a dentist, at one time, and had thereupon had a profuse hemorrhage into the anterior chamber of the affected eye, and also a hemorrhage into the vitreous. Discussed by J. A. Patterson, F. E. Wallace, W. A. Sedwick, W. C. Bane, and J. M. Shields. It was emphasized that in cases of this kind so many teeth should not be pulled at one time.

E. M. Marbourg, Colorado Springs, showed a case of ocular injury from a rock which had been thrown by a balloon tire belonging to a car which passed the car in which the patient was riding. The lens was dislocated inward and upward, there was paralysis of the ciliary muscle, and the field of vision presented a central scotoma. Discussed by W. C. Finnoff and Edward Jackson.

V. H. Brobeck, Colorado Springs (by invitation), presented a man aged 66 years whose right eye had been injured by a hammer dropped by another workman ten feet above him. There was a rupture of the sclera, and a possible dislocation of the lens. Discussed by Edward Jackson.

V. H. Brobeck, Colorado Springs (by invitation), presented a case of keratoconus in a woman of 44 years. She had worked as a seamstress for ten years until the vision had become so poor as to make work impossible. There was manifest thyroid enlargement. Discussed by W. A. Sedwick, Edward Jackson, and E. R. Neepor.

E. R. Neepor, Colorado Springs, showed a girl aged 13 years, who in 1919 had been injured by the tooth of a manure spreader which had penetrated at the inner canthus of the left eye and had passed downward into the mouth. The palpebral aperture had become lessened by cicatricial contraction of the skin at the inner canthus, so that the lashes swept the eyeball. There had been recurring attacks of dacryocystitis, usually rupturing externally. Discussed by Wm. H. Crisp and W. C. Finnoff.

E. R. Neepor, Colorado Springs, presented a man aged 51 years whose right cornea had in May, 1924, been injured by a particle of flying metal. Several attempts had been made at removal of the foreign body which was apparently embedded in the cornea. Discussed by W. C. Bane, W. A. Sedwick, W. C. Finnoff, and W. H. Crisp.

WM. H. CRISP,
Secretary.

Milk, olive oil, and some other foods which had been exposed to ultra-violet light were found to have the same curative effects on children suffering from rickets as doses of cod-liver oil or exposure of the patients themselves to ultra-violet rays.

WYOMING STATE MEDICAL SOCIETY

REPORT OF THE WYOMING SECRETARY

Following the close of the splendid Cody Convention held June 17, 18, and 19, 1924, your Secretary notified the officers elected and committees appointed of their selections, and without an exception all accepted the duties imposed. It has been a real pleasure to work with the different officers and committees. Especially do I wish to commend our honored President Dr. A. B. Hamilton, who has given the Society fully of his time and talents.

At this time I wish most humbly to apologize to Dr. W. V. Gage of Worland, Wyoming, for omitting from the program of this year's convention his name and paper entitled "Flat Foot". Dr. Gage wrote me on May 1st in answer to my request for a paper, that he would present a paper on "Flat Foot", and in the rush of preparing the copy for the printer I overlooked Dr. Gage's paper on the program. Again I apologize to one of our past Presidents, and beg his pardon.

Interesting indeed is the record of membership for the past six years. During 1920 there were 102 members paying \$2.00 dues. 1921 there were 125 members paying 2.00 dues. 1922 there were 133 members paying 2.00 dues. 1923 there were 144 members paying 10.00 dues. 1924 there were 134 members paying 10.00 dues. 1925 there were 134 members paying 10.00 dues.

Nine members have moved out of the State and death has claimed two, and still our membership this year is as good as it was last. This certainly speaks well for the loyalty of our members.

Attached herewith is an itemized statement of receipts and warrants drawn since June 20, 1924-June 20, 1925. Condensing this statement gives the following facts:

Total collection	\$1,340.00
Expenses	374.95

paid to date, part of which was for last year's Cody meeting. The Society has to its credit in the failed First National Bank of Basin:

In the General Fund	\$ 519.64
In the Medical Defense Fund	2,039.85

The following letter was received today from G. C. Dillavou, receiver of this failed bank, and was in reply to one from me asking for a statement:

Dr. Earl Whedon, Secretary,
Wyoming State Medical Society,
Sheridan, Wyoming.

Dear Sir:

In reply to your letter of the 12th inst.:

The amount on deposit at time of suspension of this bank is: Wyoming State Medical Society, \$519.64; Wyoming State Medical Society "Defense Fund", \$2,039.85.

It is impossible to state, owing to certain complications, just when a dividend will be paid. We hope that it will not be long.

Dr. Chester Harris has now returned home. During my conversation with him the other day he mentioned that he might be able to attend your meeting at Buffalo. I regret that I am unable to give you more information on this important subject, but I shall gladly keep you posted on developments, or shall at least inform Dr. Chester Harris.

If I can at any time be of further service to you or your association, please advise.

Yours truly,

G. C. DILLAVOU, Receiver.

The present cash funds in the hands of Dr. Chester E. Harris are deposited in the Bank of Commerce at Sheridan. This is one of the strongest and largest banks in our state.

The question of publishing some form of a Medical Journal or joining in the publication with some other State Society has been before the House of Delegates, and should be considered by the membership as there can be no question of its value to the Society and to the profession. The great question is to find a suitable editor who can and will devote the time necessary, and who also has the ability required for such service. We know we have such men if they will only assume the responsibilities.

The offer on the part of the Colorado State Society personally appeals to me as the golden chance, and when we remember that such powerful states as Pennsylvania and Delaware find it advantageous to join together and publish the "Atlantic Medical Journal" surely Colorado and Wyoming ought to be able to do the same thing, as our memberships are so much smaller. This question is the most important one to come before the House of Delegates for action at this meeting.

The annual meeting of the secretaries of the different state societies is held each year in the American Medical Association Headquarters Building at Chicago. Your Secretary attends and greatly enjoys these meetings. Part of this year's program is the result of the meeting last fall in Chicago. It costs the Wyoming State Society nothing to be represented, as the American Medical Association pays all necessary expenses. Personally we feel it is a splendid thing to have these conferences not only for the American Medical Association, but for the new ideas the state societies get from the attendance of their secretaries. Besides the secretaries become more efficient.

The Medical Defense Committee takes pleasure in reporting that it has not had to defend a single member during the past year and that there have been no expenditures during the year. One case did come up for consideration but was dropped when the attorney learned from our Constitution our plan of defense, and the doctor informs us that the matter is closed. The membership of the Society has been most outspoken of the value of this part of our organization and the fact that no suits started in three years operation proves the wisdom of the adoption of this feature in our Constitution.

At the Cody Meeting the House of Delegates elected to life membership the following:

Dr. W. A. Wyman, Cheyenne.
Dr. R. W. Hale, Thermopolis.
Dr. Louis Howe, Cody.
Dr. Wycoff, Cheyenne.
Dr. Phillips, Glenrock.
Dr. F. A. Hodson, Sheridan.

These members were not notified of their selection because we discovered the By-Laws would have to be amended before they could still receive the benefits of our Medical Defense Fund. Such amendments will be presented to the House of Delegates for its action at this meeting.

On behalf of the Society we wish to thank the following members of the profession for attending our meeting and reading valuable papers.

Prof. John W. Scott, Dr. T. J. Jenkins, Dr. James F. Cooper, Dr. C. A. Roeder, Dr. G. M. Anderson, Dr. Tom Bentley Throckmorton, Miss Louise Buford, Dr. A. R. Mitchell, Dr. R. P. Hentz, Dr. R. P. Smith, Dr. G. G. Richards.

Death has entered the ranks of our profession and removed the following honored members of our Society:

Dr. C. H. McLearn, Rawlins.
 Dr. C. H. Halley, Sheridan.
 Dr. A. H. Cooper, Lander.
 Dr. J. W. Hawk, Green River.

I suggest, Mr. President, that we stand with bowed heads and pause in our deliberations as a tribute to their memory, and that you appoint a special committee during the meeting of the House of Delegates to draw up suitable resolutions on their deaths.

The work of the Secretary seems to be continually growing, not only in regards to our own members and Society, but every day letters are received asking all kinds of questions from State Boards of Medical Examiners, the American Medical Association, health organizations of all kinds, etc., etc. To give you some definite idea of the work required our records show \$27.00 spent for postage during the past year. The programs required about \$5.00, so that \$22.00 or 1,100 letters were written out of our office in the past year. This gives you a little glimpse of the work your Secretary has enjoyed and it is and has been a pleasure to do what has been possible for the good fellows of the medical profession of Wyoming.

Respectfully submitted,

EARL WHEDON,
 Secretary.

MEDICAL DEFENSE

The American Medical Association Bulletin, Volume 20, No. 8, November, 1925, is largely given over to an article written by Dr. W. C. Woodward, Executive Secretary of the Bureau of Legal Medicine and Legislation, American Medical Association.

This article is really a concise report on the Medical Defense activities of the different state societies and should be most carefully studied by every member.

The condensed report of the Wyoming provision is as follows:

"The State Medical Society of Wyoming defends its members against demands for alleged malpractice, such service being available to every member by virtue of membership alone. All expenses incident to defense are paid by the Society. Expert witnesses are provided, such witnesses being paid \$20.00 per diem.

"The administration of the medical defense service of the Society is entrusted to a committee of three members. The Secretary and two members elected by the House of Delegates constitute the committee.

"A member desiring to avail himself of the services of the committee on medical defense must first submit to a local committee of his County Medical Society, composed of the President, Secretary, and one other member, a full statement of the controversy at issue. The local committee investigates all the circumstances and facts and transmits its report with recommendations to the Secretary of the State Society. If there is no county society where the threatened member lives, he then refers his application direct to the state committee on medical defense.

"When the member has insurance with a private company, the Society cooperates in the defense by furnishing expert witnesses. Other expenses incident to suit are paid by the insurance company. The Society determines whether or not a case shall be compromised, and in event of

an adverse decision in trial court, the question of appeal is decided after conference between the insurance company and the Society.

"No action has been taken by the Society with respect to group insurance, but it is estimated that approximately one-third of the total membership of 134 has indemnity insurance in private companies.

"During 1924 two members referred demands to the Society. No member referred more than one demand. During the year two claims were withdrawn before suit and two suits were filed against members, but the Society was not called on to defend either of them. No verdicts were rendered during the year.

"No expense was incurred by the Society during the year on behalf of medical defense. The annual dues of the Society are \$10.00 per member, \$5.00 of which is set aside as a special fund for medical defense. The by-laws of the Society provide that when the medical defense fund shall exceed the sum of \$12,000, the surplus over and above this amount shall be turned back into the general treasury or may be used for such other purposes as the House of Delegates shall direct.

"The Secretary of the Society reports that no expenses have been incurred on account of medical defense since the Society instituted medical defense service three years ago. Prior to that time many suits were instituted against the members every year. This, the Secretary believes, is evidence of the greatness and the value of medical defense by the State Society."

After a most careful study of all of the medical defense features as given in the other state reports we are of the opinion that Wyoming has one of the best plans and that it is working far better than could ever have been anticipated.

In order to receive the benefits of this part of our state constitution your dues should be paid at once as protection only dates from the date of your receipt as signed by the State Secretary.

Do it now! You can not afford to procrastinate in this matter.

EARL WHEDON.

PERIODIC EXAMINATION

The following letter was sent out to all members of the Oregon State Medical Society, by its Secretary, Dr. F. D. Stricker, and is submitted to the members of our State Society for them to think over and consider for action at the next annual meeting, which will be held at Lander, July 12 and 13.

"Dear Doctor: In this letter we are submitting a new plan for stimulating periodic health examinations and the recording of human efficiency. Steps are now being taken to give this plan a trial in the State of Oregon. This work will be under the immediate supervision of the Oregon State Medical Society and the Oregon Health League.

"We have the American College of Surgeons and the American College of Physicians to which only surgeons and physicians of merit are eligible for membership. Our idea is to organize something along this line of a similar body, a College of Health Examination and Efficiency Research, to be known as the C.H.E.E.R.

"A faculty will be selected from members of the State Medical Society who have shown themselves competent of making physical examinations in a creditable manner. They will first qualify by being examined themselves and by agreeing to be examined annually. Team work will be

used for giving instruction and demonstration examinations before classes and medical societies. A post-graduate course of instruction will be open to all members of the Society. Particular care will be used in selecting instructors who have demonstrated their ability to do this work well.

"When a member of the Society has completed one hundred examinations and filed his case records with the College, his application for fellowship will be considered. If the records are approved and the advice given by him satisfactory, the faculty can then elect him a fellow. It is necessary, however, for every fellow, member, and student, to go on record stating he will be examined annually.

"This movement is to be popularized by practical demonstrations before local medical societies. It is of the utmost importance that every physician interested should not only be examined annually himself, but should make every effort to see that the members of his family also use this privilege. We would then be able to demonstrate to the public that we are not only taking our own medicine but are placing ourselves and our families in a position to enjoy longer life and better health.

"Briefly, that is our plan. What do you think of it?

"Very truly yours,

"OREGON STATE MEDICAL SOCIETY,
"F. D. Stricker, Secretary."

Inclosed with this article the following questions were sent out, and because they are so to the point we are quoting them:

"1. Modern medicine is keeping stride with scientific research. Membership in the State Society gives you a scientific standing.

"2. Membership in the State Society provides you with publications recording the latest developments in the Medical Society.

"3. Membership in the State Society gives you entrance to medical societies in any state of the United States.

"4. Membership in the State Society permits you to discuss with the leaders of the profession medical problems.

"5. Memberships in the State and local society are necessary before you can affiliate with the reputable, professional societies of the country and the American Medical Association. In some states a year's membership in the local society is required before they can secure a license by examination or reciprocity.

"6. Membership entitles you to medical defense.

"7. Only members of the State Society are given the opportunity to get indemnity insurance at a reduced rate.

"8. Membership entitles you to a card in the directory of licensed physicians.

"9. Members will be supplied with literature for distribution among their patients on what scientific medicine is doing to prevent disease.

"10. By paying your dues you are advancing funds to promote better medical legislation.

"11. The Society has an active committee on Workmen's Compensation, making it possible for every physician to secure this work.

"12. The welfare of your profession depends upon the support you give it. A well organized profession means greater respect and better compensation."

By the time this article is in the hands of the the Wyoming State Society each one will have received a copy of the American Medical Association

"A Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons". This manual deals in a very complete way with the entire question of how to proceed with such examination and gives a most excellent outline of a record card or blank covering the points of said examination.

As the major objective of this year's work in the State Society, this manual will be the key-stone and by building around this the physicians of Wyoming will be more scientific and of greater usefulness to the people of the state.

Please preserve this copy carefully and if for any reason you did not receive one write the State Secretary, who will see that you are supplied.

EARL WHEDON.

TREASURER'S REPORT

Cash on Hand Jan. 1, 1926

Balance on hand, General Fund.....	\$ 504.35
Balance on hand, Medical Defense Fund	445.17
Medical Defense Liberty bonds, par value	1,000.00
Balance on hand, Vaccination fund.....	235.00
Funds tied up in First Nat. Bank at Basin, Wyo.	2,175.56
	<hr/> \$4,360.08

Respectfully submitted,

DR. EVALD OLSON,
Treasurer, Wyoming State Medical Society.

CORRESPONDENCE

To the Medical Profession of Wyoming:

Just a word to you concerning our next state meeting. I want these suggestions to get to you early so you can make your plans to get to the meeting this year.

For the last few years there has been an improvement each year in the scientific value of the essays given at our state meeting. When the good Lord said feed my lambs, he meant intellectual food. This we have had in the past as our meetings have been worth while. They are a post graduate course. This year we have purposely set the meeting at a later date, July 12 and 13. By this time the rains will be over, the roads good and the fishing fine. We are going to have the best program this year we have ever had. We will have men with us of national reputation. We will have papers by some of our own splendid men. We hope this year you will make definite plans for attendance at the state meeting. Not only does the society need you, but you need the society. We are expecting a much larger attendance this year. It has been a wonderful year for the ranchman and farmer. Inasmuch as they have prospered the doctors' collections have received an impetus.

This year you can afford to be with us and we are expecting you. Remember, we will have a banner program; we want a banner attendance. Your patients need a rest.

Fraternally yours,

C. H. PLATZ,
President Wyoming State Medical Society.

WORRIES

The University of North Carolina Press quotes the following verse:

Rich folks worries 'bout trouble,
Po' folks worry 'bout wealth.
I don't worry 'bout nuthin';
All I want's my health.

—The Public Health Nurse.

BOOK REVIEWS

Massage and Therapeutic Massage. By Mary McMillan, Supervisor of Aids in Physiotherapy, Medical Corps, U. S. A., 1919-20. Second Edition, Reset. 12 mo. of 331 pages with 17 illustrations. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$2.50 net.

This small volume of approximately 330 pages contains a very good treatise on the subject of massage and therapeutic exercise. The first part of the book is devoted to a description of the various types of massage, the technique of each and its application in medical disabilities; while the second part deals with graded exercises in both the prevention and correction of anatomical deformities. In addition there is an index which gives a list of the apparatus needed for a minimum Electro-therapy and gymnasium equipment. This list will be very beneficial to anyone intending to enter this field of work.

As a whole, the book is well written and the 117 illustrations are very appropriate and helpful. A few of the chapters, particularly the ones: Outline of General Massage, Flaccid Paralysis, Posture Work, and Foot Exercises are exceptionally good. However, there is a tendency on the part of the writer to delve a little too far into the description of symptoms and surgical treatment of injuries.

All in all, this book is a very good one either as a text book for the Physio-therapy aide or as a reference book for the doctor who is interested in this type of work.

H. I. BARNARD.

The Normal Diet: A simple statement of the fundamental principles of diet for the mutual use of physicians and patients. By W. D. Sansum, M.S., M.D., Director of the Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara, California. Seventy-two pages with illustrations. Price, \$150. The C. V. Mosby Company, St. Louis 1925.

The author presents a simple statement of the fundamental principles of diet for the mutual use of physicians and patients. The subject matter of the book has been given repeatedly by the author in lecture form, to patients suffering from the various nutritional disorders.

The author reviews in a compact form the following topics: The Caloric and Protein Requirements of the Body; The Bulk Requirements of the Body; The Mineral and Vitamine Requirements of the Body.

With the limited space allotted to these various headings the results are an incomplete and fragmentary presentation which serves no real purpose to either lay person or physician.

It is regrettable that more space was not allotted to so important and up-to-date subject.

JULIUS L. MORTIMER.

Researches at the Carnegie Institution's Department of Genetics showed that determination of sex must be considered from a physiological, chemical, and biological standpoint, and that changes in the rate of living of the organism may be even more fundamental in determining sex than the makeup of the cell itself.

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TUNING IN

"Punch" in the New

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Brought into the world to the fifteen-second striking of a heart-beat clock, as the baby arrives, it automatically registers on the clock, the second, hour, day and year of its birth and the name of the attending physician.—Denver Municipal Facts.

Actinomycosis

As we have before stated, actinomycosis is distributed widely in this country, being especially prevalent in the upper Mississippi valley and the northwest portion of the country. It is far more common than one is led to believe from the scattered reports that have appeared in the American literature. This fact should make all physicians more alert in the diagnosis of the disease, which is very easily made from a microscopic examination of the discharges. The public generally might be warned of the danger of chewing straws, weeds and grain, as a possible means of infection with actinomyces. Much is yet to be learned, however, with regard to the source of infection in man and animals, and also much is to be done in the proper classification and the bacteriologic investigation of the different species in this group.—Sanford in Archives of Surgery.

Water-Hyacinth and Malaria

There may be considerable production of Anopheles in water-hyacinth-covered waters, the weed interfering with wave action and the activities of minnows and hindering the use of larvicides and other antimosquito measures. High production of Anopheles in water hyacinth is not universal, and measures against the weed should be undertaken only where indicated by a considerable production of Anopheles and a significant amount of malaria.

The introduction of the plant into new waters suitable for its spread should be discouraged as a possible source of trouble to the health officer as well as to the navigator and fisherman—U. S. Public Health Reports.

"National Health Service"

Frequent inquiries are received at the office of the surgeon general, asking if the "National Health Service" located in Washington, D. C., has any connection with the Public Health Service or with the government of the United States.

On numerous occasions, letters evidently intended for the "National Health Service" have been addressed to the Public Health Service and it was clear that the writers believed the "National Health Service" to be a branch of the federal government.

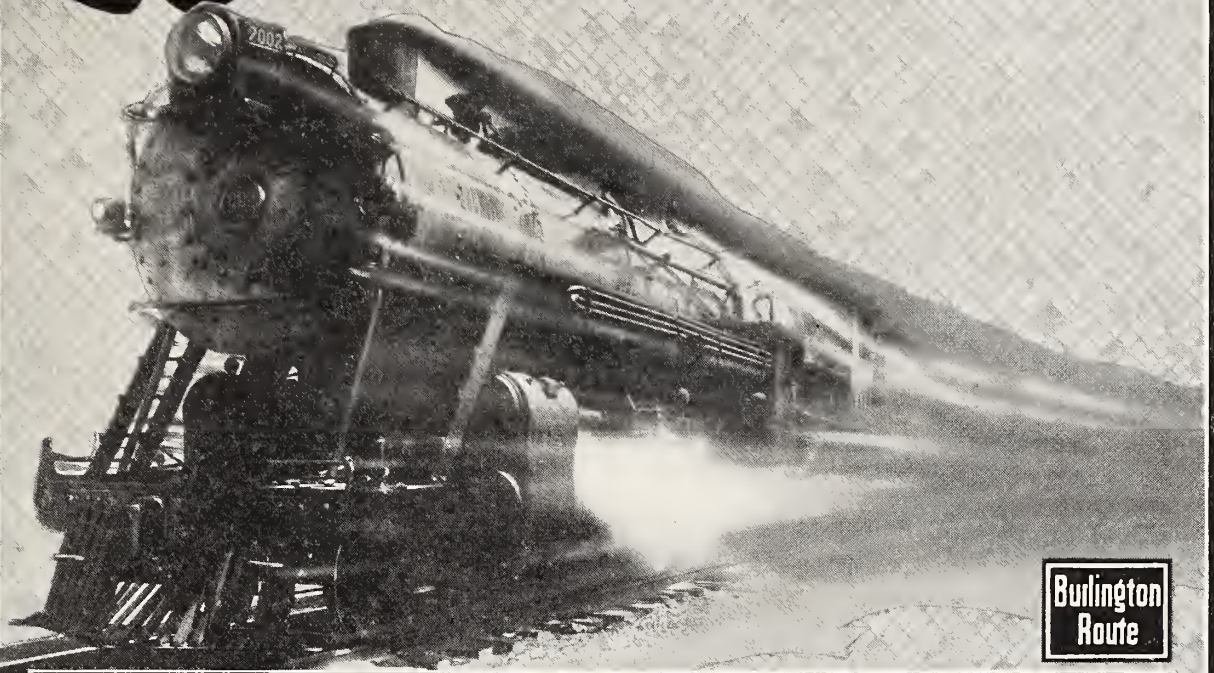
Surgeon General H. S. Cumming desires to announce that the "National Health Service" which advertises, and sells, a "health book", has no connection whatever with the Public Health Service, and insofar as can be learned, with no branch of the government.

It should be definitely understood that the Public Health Service does not endorse this self-styled "National Health Service" or its books.

This announcement seems necessary in fairness to the general public.—Journal of Iowa State Medical Society.

(Continued on page X)

~~SPEED~~ RECORDERS



All the locomotives which haul the passenger trains over the Burlington main lines are equipped with speed **recorders**. We do not mean by this the familiar speedometer with which the locomotives, in common with most power-driven wheeled vehicles, are equipped.

The speed recorder is a device which not only measures but also chronicles the rate of motion and thus preserves an indelible chronological record of the full performance of the train — a chart of the trip (or as a sailor would say — a log).

The chart is proof conclusive that a regulated, uniform speed has been maintained mile after mile and hour after hour between stops; not sub-normal here and excessive there, but even and unvarying all the way.

It makes for reliability; helps to bring about travel-comfort — and at night it spells **SLEEP**.

The Burlington Route and its associates are the only railroads west of Chicago whose locomotives are equipped with this speed recording device.

The Press Sounds a Warning to the Profession

BLAMED FOR INVALIDISM

*Woman Sues Doctor for
\$25,000 Damages Due to
Asserted Illness*

Declaring she became violently ill as the result of being _____ against _____, Mrs. _____, formerly employed in a downtown theater, has brought suit in Superior Court for \$25,000 damages against Dr. _____, who was asserted to have conducted the _____.

Mrs. _____ stated the management of the theater required her to be _____ and that Dr. _____ was employed to administer the _____. She said she expressed great fear of the proposed _____, but was assured by the defendant that she would suffer only a mild reaction. In-

Each and every detail of any day's work contains the factor of malpractice risk. A doctor's work is exposed to the suggestions and criticisms of friends of the patient, other doctors, lawyers, gossip and whims of the patient himself.

STOP—and consider what your practice—possessions—peace of mind—time—reputation and good name are worth.

LOOK—What one of your colleagues wrote after years of procrastination.

"For some months I have been receiving literature from your Company offering to sell me protection against malpractice charges and damage suits. I put this off too long, for I have a suit filed against me.

"However, it is not too late to take protection against others that might be filed. I am ready to take a policy that offers the best protection for the money."

LISTEN—to the praise for the specialized service of the Medical Protective Company as expressed by one of the profession who was prepared.

"The verdicts in the above cases have resulted in my favor. I take this occasion to express my heartiest appreciation of the manner in which these cases were handled by you and of the high grade of counsel furnished me. I feel positive that no ordinary insurance company could have handled the situation in the masterly manner shown by you."

Tens of thousands of your profession consider the Medical Protective contract an essential adjunct to their practice. Actual experience justifies their convictions.

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Medical Protective Service

Have a

Medical Protective Contract

THE
MEDICAL PROTECTIVE COMPANY
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SUPPORT YOUR ADVERTISERS

TUNING IN

(Continued on page VIII)

Longevity

"While babies born today have many times more chance of living to maturity than they did twenty-five years ago," the Prudential Life Insurance Company says, in a recent bulletin, urging all apparently well folks to have frequent medical examinations. "The person of thirty-five today needs help to keep as many years ahead of him as had his grandfather when he was 35 years old. The failure is that of the individual—not of medical science or physicians. Today man has everything but himself working in his favor for health longevity".—Ohio State Medical Journal.

Type of Soil Affects Hookworm

The rapidity with which hookworm is developed in the soil and spreads depends directly on the texture of the soil. Dr. Donald L. Augustine of Harvard Medical School and Dr. W. G. Smillie of the International Health Board told members of the American Association for the Advancement of Science meeting here.

Hookworm develops best in fine, sandy soil and least of all in clay. Dr. Augustine explained. A survey was made of the state of Alabama because it is naturally divided into seven main soil regions which differ in texture but which are similar in chemical properties.

As no real difference exists in sanitary conditions and in temperature throughout the state, the different degree in which hookworm developed in the various localities must be due to the texture of the soil, Dr. Augustine said.—Science Service.

Endowment for the Physicians' Home

The campaign to establish an endowment fund for The Physicians' Home, the first small unit of which is already in service at Canadea, N. Y., was launched Monday, November 23, at the Waldorf-Astoria, New York. An impressive gathering that included men and women prominent in medical, financial and other fields heard noted speakers outline the purposes of the campaign and laud the movement. A number of substantial donations were received indicating the interest of the profession and the public.—Southern Medicine and Surgery.

American Health Congress

The American Health Congress, in which sixteen national organizations will participate under the auspices of the National Health Council, will be held at Atlantic City, May 17-22, 1926, with headquarters at the Steel Pier.

Outfadding McFadden

For the unscientific extravagances to which his doctrine has led him, Bernarr McFadden, U. S. apostle of body-worship, blatant exponent of "physical culture", has more than once called upon himself the censure of the American Medical Association. Now it appears that England has an intellectual counterpart of Apostle McFadden in Captain Anthony M. Ludovici. A lecturer and conversationalist, one-time secretary to the late Sculptor Auguste Rodin, married, 43, Captain Ludovici is ostensibly an opponent of British feminism, but his book dwells upon the physiological aspects of the argument with all the insistence and most of the exaggeration of a typical McFadden editorial in breast-feeding, pride in body and "the happy congress of man and wife."—Time.

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THE LIVER AND GALL BLADDER

Since the time disease was explained by the improper admixture of "humors", the liver has occupied an important place in medicine. Even today most patients consider "torpid liver" or "biliousness" a diagnosis.

Within the last few years, however, a new page has been turned in our knowledge of the physiology of the liver and its appendage, the gall bladder. The observation of Roundtree that tetrachlorophenolphthalein is excreted through the liver was soon followed by the development of a technique by Rosenthal to determine its rate of disappearance from the blood stream. From this beginning we may confidently expect a practical liver function test comparable to that of the kidney. The above fact, coupled with the concentrating function of the gall bladder as demonstrated by Mann, has led to the practical use of the x-ray in the diagnosis of gall bladder disease, a procedure recently introduced by Graham and Cole. The discovery of insulin by Banting and Best has awakened a new interest in the function of the liver in sugar metabolism. The extirpation experiments of Mann have demonstrated that it is absolutely necessary in the metabolism of both carbohydrates and proteins. He has also shown its place in the destruction or at least the control of uric acid in the blood. Likewise, he has proved that it is not the only source of bile pigment production. From such discoveries as these, the diagnosis of liver and gall bladder disease has been lifted from the realm of conjecture into that of relative certainty.

GORGAS MEMORIAL PROGRAM, 1926

The Board of Directors of the Gorgas Memorial have recently announced to the profession the following program for the year 1926:

First: An intensive campaign to promote interest in better personal health, urging yearly health examinations.

Second: A national mosquito abatement campaign.

Third: The beginning of a research program.

Fourth: Encouragement of cooperation between the public and scientific medicine.

Fifth: A continuation of the organization of state governing committees.

This great medical movement, which bids fair to be one of the greatest in social medical progress, owes its origin to William Crawford Gorgas whose interesting biography we were pleased to publish in a recent issue.

HEALTH EDUCATION

The American Medical Association is encouraging a nation-wide movement to acquaint the laity with the essential medical facts in health matters. **Hygeia**, authentic medical lectures, newspaper articles and radio talks are among the important educational methods employed. Despite these, however, it is questionable whether this great social problem can be solved unless it is attacked in a more fundamental manner. Consequently, our wisest medical

statesmen are advocating health education for school children.

In the Journal of the National Education Association of December, 1925, there appeared an interesting article on "The New Curriculum". It is there stated that the commission on curriculum revision has concluded that there are seven things that every school child should learn, and among these things "How to keep well" stands first. From this it would seem that health is one of the chief aims of secondary education. Therefore leading school systems have established departments of health education. In this the ideals of education and medicine are one. This fact alone should guarantee mutual aid in developing such education to its maximal efficiency.

The department of health education is directed and manned by ethical physicians and nurses, wherever established. These doctors and nurses make frequent physical examinations of school children. If correctable defects are found, the child is advised to see the family physician for confirmation of diagnosis and such treatment as he thinks necessary. Thus children with physical handicaps are directed to competent physicians rather than charlatans and at an age when a lasting service may be rendered. In addition to this demonstrative health education, constant attention is given to the practical phases of food and health habits. The child learns that health depends upon sane living rather than astral influences, electricityless electricity or impressive spine thrusts. Children, accustomed to frequent examinations and fortified by a clear knowledge of health facts, are likely to develop into healthy men and women. They at least learn that the doctor, and not the faddist, is the safest health counselor.

Physicians, interested in the future of the practice of medicine and the highest social service of medical science, will welcome with enthusiasm this health work in our public schools. Of course many petty conflicts and misunderstandings arise between private physicians and the so-called school doctor. But by cooperation these can easily be overcome. The educator's aim is exactly that of

the physician; namely, to produce citizens who know how to keep well. By and large it seems that the department of health education in our public schools is the best opportunity for the medical profession to convey effectively the message of scientific medicine to the lay public.

TWENTY-TWO MILLION DOLLARS

One of the large Life Insurance companies of the United States makes the statement that twenty-two million dollars were paid during 1925 to physicians and surgeons of the United States for consultations and advice.

That seems a large sum but when you consider that on a basis of 120,000,000 people it only amounts to seventeen and two-thirds cents per year, it's too low. We are spending \$362,000,000 for chewing gum and \$22,000,000 for medical and surgical advice. Quacks receive several times \$22,000,000 and yet we hear some people howl about paying a scientifically trained physician some little bill, and all of which brings us to the big program for 1926.

Wyoming physicians should be prepared to make as good physical examinations of the apparently healthy as can be done in the best medical centers of this or any other country.

This is not a dream: it's going to be a fact. We have the men, all they need is the special training, and that is our program for 1926.

It can be done, let's do it.

Begin working with the "Manual of Suggestions for the Conduct of Periodic Examinations of Apparently Healthy Persons," a copy of which you have received with the compliments of your State Society. If you did not receive a copy write to the Secretary of the Wyoming State Medical Society at Sheridan, Wyoming. Read it and re-read it, then do your stuff.

At the Lander meeting this is to be the chief subject for discussion.

Let's go, boys; let's go.

E. W.

It is better to know nothing than to know badly, or little, which is the same thing.—
Epigrams of Remy De Gourmont.

WHY?

An epidemic of scarlet fever is more dreaded by the profession than that of any other disease of childhood. Not only on account of the high death rate, but the after effects which leave crippled children in place of the healthy ones they were before the attack of this disease. Because some epidemics begin with such mild cases it is difficult for health officers to get the cooperation which is so essential in the control of the spread of this disease. As the epidemic progresses the death rate increases and the bad after effects intensify. Then it is that the people wake up. Recently in parts of northern Wyoming this disease has appeared and the profession has been using the Dochez scarlet fever antitoxin.

One of the chief benefits of medical societies in the advancement of medical science are the discussions which occur at these meetings where we honestly compare our experiences in the epidemics and the results. And yet there are some members of the profession who do not attend these meetings as they should. Why?

Can the answer be, "I do not think it pays for the time spent". Then the fault lies in the society. If so it is up to all the members of such a society to do his part to improve the meetings. Don't blame the officers. It's your own fault. Suggest and help furnish a better program. Be present. Boost, don't knock.

E. W.

LIPIODOL

Lipiodol is a chemical combination of iodine in a vegetable oil. It is manufactured in two strengths, heavy (40 per cent) and light (7 per cent), by Dr. L. Lafay, a pharmacist in Paris.

Originally intended for therapeutic injections wherever iodine is indicated. It was so used for years by Dr. J. A. Sicard.

Its opacity to Roentgen Ray was accidentally discovered by Dr. E. Rist, of Paris.

Dr. J. A. Sicard forthwith, appreciating the possibilities of Lipiodol in this field, rapidly extended its use to almost every or-

gan and tissue of the body. He was the first to use it as an aid in diagnosis of tumors of the spinal cord.

Injected into the cisterna, the descent of Lipiodol was checked by roentgenograms and has proved a valuable adjunct in X-ray diagnosis of medullary and subdural tumors of the spinal cord, as well as irregularities of the spinal canal.

By placing the patient in the exaggerated Trendelenburg position and injecting Lipiodol subdurally in the lumbar region of the cord the process was reversed. This led to the development of the lighter formula, Lipiodol ascendens. A combination of these methods can be used to determine extent of the lesion. Lipiodol ascendens, when injected subdurally into the lumbar region of the cord, with the patient in the erect posture, ascends even into the cerebral ventricles. Here it gives splendid roentgenograms of the ventricles, far surpassing those obtained by the direct injection of air as advocated by Dandy.

The next step was the injection of the tracheo-bronchial tree to intensify outlines of the bronchi and cavities within the lung. Striking shadows of bronchiectatic and other cavities can thus be obtained. Compression of the lung and bronchial tree by extra pulmonary tumors facilitates the diagnosis of the conditions.

The injections of sinuses anywhere in the body proved equally advantageous.

The most recent extension of the use of Lipiodol is in the genito-urinary tract.

The patency of the fallopian tubes; size, shape and irregularities of the uterine cavity can be beautifully demonstrated.

The urethra, vas and deferens and seminal vesicles can also be clearly outlined.

Satisfactory pyelograms have not yet been made.

Lipiodol the French authorities claim to be non-irritating and of low toxicity. Evidence to the contrary is rapidly accumulating. It certainly is irritating and therefore its use is not without considerable danger, especially in the cerebrospinal and pulmonary systems. The low toxicity becomes of considerable moment whenever it gains access to the digestive tract.

C. F. H.

BRONCHOSCOPY AS AN AID IN THE DIAGNOSIS AND TREATMENT OF SUPPURATIVE DISEASES OF THE LUNG*

ROBERT M. LUKENS, M.D.
PHILADELPHIA, PA.

The frequency of pulmonary suppuration following tonsillectomy was the means of calling the attention of the profession to this very frequently undiagnosed disease. Many cases of pulmonary suppuration escaped diagnosis by being mistaken for tuberculosis, unresolved pneumonia, suppurative bronchitis, and chronic bronchitis. Failure to diagnose pulmonary suppuration is due mainly to insufficient laboratory and x-ray studies. At the present time a greater number of pulmonary abscesses are being found than previously because of routine bacteriologic examination of the sputum and x-ray examination of the chest in cases of obscure cough, whether productive or unproductive.

A diagnosis of tuberculosis, the most common error, should never be made where tubercle bacilli are absent from the sputum and no x-ray examination has been made. We are constantly discovering cases of suppuration which have gone the rounds of the hospitals as tuberculosis patients, who have never shown tubercle bacilli in the sputum nor had had x-ray study, which proved to be pulmonary abscesses at the first x-ray examination. Advanced pulmonary suppuration presents a clinical picture closely resembling tuberculosis. Emaciation, loss of strength, dryness of the skin, lustreless hair, clubbing of the fingers and toes, cough, fever and pallor very often are prominent symptoms in advanced suppurative lung cases. However, tubercle bacilli are never present; and the x-ray invariably shows little or nothing suggesting tuberculosis but does show consolidated, more or less circumscribed areas and cavities, some with fluid level usually in regions not attacked by tuberculosis.

The causes of pulmonary abscess in order of frequency, exclusive of foreign body abscesses, as found in the bronchoscopic clinics of the Jefferson Hospital are as follows:

1. Tonsillectomy.
2. Lobar pneumonia.

3. Abdominal operations.
4. Child birth.
5. Measles.
6. Influenza.
7. Tooth extraction.
8. Whooping cough.
9. Diphtheria.
10. Pharyngitis.
11. Bronchitis.
12. Infantile paralysis.
13. Unknown cause.

The onset of symptoms following tonsillectomy—the most common cause of diagnosed pulmonary suppuration—is rather sudden and occurs as a rule within ten days after operation. The incubation period may be said to be nine days. There are some exceptions to this rule. We have one or two cases in which the first symptoms appeared within twenty-four hours. Following tonsillectomy, the patient undergoes a fairly normal convalescence until about the seventh or ninth day when there may occur some pain in the side or back and cough which at first is unproductive. Later large quantities of foul pus accompanies the cough with a rise in temperature. In other cases there is some lassitude with a slowly rising temperature, loss of appetite and general feeling of malaise starting about the fifth or sixth day followed by cough, at which time a large quantity of pus is expelled, accompanied by a drop in temperature. Following this the patient may feel fairly well and be free of cough for several days when coughing and profuse expectoration will be repeated. During the course of the disease the sputum may be blood streaked or there may be small, frank hemorrhages. In none of the cases treated at our clinics have we ever seen hemorrhage as an early sign. It is usually late and is due either to granulations at the abscess site or to the rupture of a vessel in the cavity. Cavitation is frequently very early in pulmonary suppuration following tonsillectomy. At our clinics we have seen large cavities with fluid levels as early as three weeks after tonsillectomy. The infec-

*Presented at the fifty-fifth annual session of the Colorado State Medical Society, September 29-October 1, 1925.

tion responsible for post-tonsillectomy abscesses as a rule is very intense. Abscesses following acute infectious diseases result in cavities rather late in the disease and the progress of the disease is more insidious than in the post-surgical cases.

The infective organism gains entrance theoretically by three routes. First, by aspiration of infected material; second, by embolism; and third, by way of the lymphatics. It is generally agreed that aspiration and blood stream infection are probably the most frequent routes. Lymphatic extension is probably extremely rare. It is not a question of whether a pulmonary abscess is produced by aspiration or by embolism, but rather as to the frequency in which it occurs by either of these routes. We can readily understand that aspiration is probably the most frequent route in operations about the nose and throat. In abdominal operations blood stream infection would seem to be the route, however, vomiting produced by manipulation of the abdominal organs under an insufficient general anesthetic may be productive of aspirating infective material from the stomach. The records of the abscess cases coming under our care make no mention of vomiting during the operation and it was impossible to obtain any data from that angle, therefore, there still remains a question as to the route of invasion following abdominal operations. At the Jefferson bronchoscopic clinics we are of the opinion that aspiration is the most common route.

Pathology: The pathology of lung suppuration is of importance in that it suggests the method of treatment. A fully developed localized area of lung suppuration consists of a more or less circumscribed collection of pus surrounded by a protective wall of inflammatory lung tissue with an outer zone of bogged lung tissue. Fortunately the abscess tends to "point" into a bronchus rather than into the pleural sac. X-ray films of unmapped lung show what apparently is a large more or less circumscribed area of consolidation. In the mapped lung the actual cavity is outlined by a heavy shadow near the centre of these areas. In the un-

mapped x-ray picture no distinct lines of demarkation can be seen between the bogged or "soaked sponge" lung tissue, the inflammatory zone, the granulations, and the collection of pus in the cavity unless the cavity is empty or contains a fluid level. In the mapped lung the barium emulsion or bismuth powder used in mapping, will fill only the evacuated portion of the cavity. It does not reach the actual wall of the abscess because of the presence of granulations. Consequently, the abscess appears to be much smaller than it actually is.

As in abscesses in other parts of the body, they tend to empty themselves and heal up, but due to the upright position of man, this is interfered with by gravity. The outlet, instead of being at the bottom of the pus collection, is at or near the top; and drainage is defeated except in certain cases of upper lobe abscess. Several cases have been cited in which the abscess which was in the upper lobe cleared up spontaneously. Here the drainage was near or at the bottom of the abscess and if there was no obstruction, such as granulations, to the free flow of pus, a spontaneous cure could, with reason, be expected. We feel that lower lobe abscesses rarely heal spontaneously and that the majority of spontaneous cures occur in the upper lobe cases. In inadequately drained lung abscess saprophytic invasion sooner or later occurs producing the horrible odor encountered in these cases.

Treatment: In lung suppuration either medical, surgical or bronchoscopic treatment may be employed. The selection of the method to be used must be governed by the characteristics of each individual case. In some cases all three methods may have to be employed. In the great majority of cases, however, the medical and the bronchoscopic treatment combined give the best results with the lowest mortality. It has been estimated that treatment by radical external surgery, with the exception of mere incision and drainage, has a mortality of over 50 per cent. These operations upon the lung and chest are formidable and are attended with considerable shock, therefore the internist is loathe to refer his lung abscess patients to

the surgeon except as a last resort. In the meantime, expectant treatment combined with general tonic and postural treatment is carried out. If the drainage way through the bronchi, trachea and mouth could be kept clear and of sufficient size to allow of free passage of the pus, this treatment would be ideal. However, due to the upright position of the human being and the reparative efforts of nature, the drainage way is obstructed in the early cases by edema of the mucosa of the bronchus, later by granulations in the abscessed cavity which frequently extend beyond the cavity into the bronchus, and, eventually, by cicatricial stenosis of the draining bronchus.

There is only one way in which the passage ways can be kept open and that is by removal of obstruction and by making the outlet of sufficient size. This can be accomplished only by direct operation upon the abscess outlet. Bronchoscopy is peculiarly adapted for this purpose. The dangers of a general anesthetic upon diseased lung tissue is eliminated. We have never used a general anesthetic for bronchoscopy uncombined with external surgery. Cocaine locally to the laryngo-pharynx is the only anesthetic used after the first two or three treatments at which time an adequate hypodermic dose of morphine is administered. Children do not receive any local anesthetic. The bronchoscopic operation is of short duration, rarely exceeding ten and frequently but a very few minutes. When skillfully performed there is no trauma. Patients, unless they are bedfast, come to the bronchoscopic table in their ordinary clothes, get up from the table after the bronchoscopy and leave the hospital within an hour, returning for subsequent treatments at intervals of from four days to two weeks. The usual period between bronchoscopic treatments being one week.

Bronchoscopic treatment consists in the collection of a specimen of pus for bacteriologic study and preparation of vaccine, the evacuation of the abscess cavity, the removal of granulations, the dilatation of stenotic portions of the bronchus and the local administration of medicaments. Thus it will

be seen that bronchoscopic treatment of pulmonary suppuration is essentially the old surgical principle of free drainage as applied to localized infection elsewhere in the body.

Bronchoscopic treatment is not applicable to every case of pulmonary suppuration nor is it intended as a substitute for other treatments, but rather to be used as an adjunct to general medical treatment and sometimes as an aid to the surgeon in external operations where external chest surgery is indicated. The role of the bronchoscopist is similar to that of the plumber. His duties are to open up and keep clear the drainage pipes. As an aid to the internist, the first importance is in making or verifying the diagnosis of pulmonary suppuration. Secondly, to obtain material for vaccine to be used by the internist along with other general treatment; and thirdly, as local treatment.

By bronchoscopic methods, cultures may be obtained from deep down in the lung without the danger of contamination by mouth organisms. Usually cultures obtained by bronchoscopy contain from one to three organisms, very rarely above that number. Some of these organisms may be air-borne but it is an easy matter to eliminate one or two air-borne organisms from the culture and to select the pathogenic organism; whereas, cultures taken from the mouth or expectorated material contain huge numbers of unimportant organisms, requiring considerable treatment of the specimen before it can be used.

The diagnostic bronchoscopy verifies the diagnosis of the internist and the roentgenologist as to the pathology and the location of the lesion and also furnishes a clue as to the best method of treatment to be used whether medical, bronchoscopic or surgical. The treatment by bronchoscopy is practically always combined with medical treatment. The internist as a rule works in association with the bronchoscopist, his duties being to check up on the results of bronchoscopic treatment by frequent physical examination and by carrying out treatment similar to that used in pulmonary tuberculosis. Frequent x-rays are made to check up on the progress of the pulmonary lesion.

As an aid to the surgeon the bronchoscopist assists in the diagnosis and frequently helps at the operation. In cases in which it is decided to open and drain the abscess externally, the passage of the bronchoscope through the draining bronchus into the abscess cavity helps the surgeon to locate exactly the position of the cavity by assuming the role of transilluminator and probe. In this way needling by the surgeon is unnecessary and eliminates puncturing healthy lung tissue in the search for the abscess.

Prognosis: The prognosis based upon study of our series of pulmonary suppuration cases depends upon several things. First, the influence of etiology; second, the duration of the disease; and third, the location of the abscess.

Etiology: The post-surgical cases show the greater number of cures, thirty-seven plus per cent while in the post-disease cases the cures were twenty-six plus per cent.

Improvement in some degree, very often marked, occurred in 60 per cent of the post-disease cases while in the post-surgical cases 37 per cent showed improvement.

Twenty-five per cent of the post-surgical cases were unimproved while only 13 per cent failed in the post-disease cases.

Location of the Abscess: Solitary abscesses of the right lung and of the upper lobe of the left lung respond best to bronchoscopic treatment while those occurring in the left lower lobe respond very poorly to treatment. This is probably due to the fact that the left stem bronchus is longer, smaller in diameter and joins the trachea at a more acute angle than the right stem bronchus. Multiple abscesses naturally are more difficult to drain than solitary abscesses.

From our studies we feel that the time factor is the most important of the three. Although only 26 per cent of the post-disease cases were cured as again 37 per cent of the post-surgical cases, we feel that, had we secured the disease cases as early as the surgical, the results would have been about equal.

Conclusions: 1. Insufficient diagnostic methods, notably failure to use the x-ray

and the bacteriologic laboratory in obscure cases of productive cough, are responsible for erroneous diagnosis of tuberculosis, etc., in cases of pulmonary abscess.

2. The surgical principle of establishing free drainage of localized collections of pus can be applied to abscesses of the lung by means of the bronchoscope.

3. Upper and middle lobe abscesses, abscess of the right lung, and solitary abscesses respond best to treatment. Multiple abscesses, regardless of situation, and left able to treatment.

4. The success of bronchoscopic drainage depends to a great extent upon the promptness with which a correct diagnosis is made. Sided solitary abscesses are the least amenable to treatment.

DISCUSSION

W. V. Multin, Colorado Springs: As the opener of the discussion on this paper, it would be no more than fitting that I should express the thanks of the entire Colorado State Medical Society to the Bronchoscopic Clinic, Dr. Jackson, Dr. Lukens and Dr. Moore for coming this great distance and giving us this wonderful presentation of their great work. I know you see now why I wanted their pictures put on before I opened this discussion, because it illustrates one point that I would like to bring out and emphasize, and that is that bronchoscopy is not the awful, formidable procedure that a great many lay people—and, I am sorry to say, a number of physicians—think it is. I feel that if we are to get good results from the bronchoscopic treatment of these cases, they should be treated early. After seeing the charts and slides that these gentlemen have shown you, you will likely agree. However, if you procrastinate and if you let your patient stay around trying to empty their cavities by postural drainage alone, I think you are not doing the best thing for them. I am thoroughly convinced in my own mind that postural drainage will not entirely empty an abscess cavity. I have passed the bronchoscope on these patients who have, what you might say, perfected themselves in the art of postural drainage: each one is a law unto himself; one will drain better on one side, and one on the other, and another by standing on his head, and they each learn how they drain best. I have had all these people carry on postural drainage just before they come to the operating room for their bronchoscopy, and I have in no single instance found that diseased cavity empty.

I think bronchoscopy is not a radical procedure; if it does not cure, it does more good than any other thing I know of for these very unfortunate people. I compare it very much to the treatment of accessory sinus disease. Accessory sinus disease starts as an acute infection. The first thing you get is edema of the mucous membrane. The first procedure, then, is to shrink the mucous membrane, trying to overcome the edema and get aeration and drainage in that way, and then perhaps apply suction, or irrigation, or whatever your choice of treatment is. Now the same applies in suppuration in the chest. If you just leave the sinuses to nature, in a certain number of cases you may get a spontaneous cure, and this is par-

ticularly so of the frontals, but in the maxillary sinuses, where you have no advantage from gravity with the ostium at the top of the cavity, you have to resort to other means, and I think the very same applies here. The upper-lobe cases do better, while the lower-lobe cases do not, and they are greatly benefited by the suction and lavage.

Dr. Lukens emphasized the bacteriological and Roentgen-ray examination, and I certainly want to add to that a thorough physical examination by the internist. I think that is the combination that they use in their clinic, of course, but Dr. Lukens just seemed to emphasize the other two. I am surprised that influenza as an etiological factor was so far down the list. I think it was the sixth. It seems to me in the cases I have seen it was much higher on the list as a causative factor, almost following post-tonsillectomy cases. I think the epidemics during the war were responsible for a good many of these cases. I have always felt that embolism was a greater factor in the cause of post-operative lung abscesses than we have given it credit for. We can prove one cause, and that is the aspiration, but it is harder to prove the embolic theory; however, in one series that Dr. Lukens has analyzed, the upper lobe was affected more often than the others in post-tonsillectomy cases, and I think that might be one thing that would be in favor of the infection getting there through the blood or lymph stream, rather than by aspiration. As to asthma, I feel that bacterial protein sensitization is by far the greatest cause of this symptom, and in most of the cases I see the upper respiratory tract is most often the original focus, with the tracheo-bronchial tree and the peribronchial glands being involved secondarily. Therefore, we endeavor to clear the upper respiratory tract of infection, removing the hyperplastic tissue or polyps, and then if we do not get a result, the infection may be retained in the bronchi and relieved by bronchoscopy as Dr. Moore has shown you.

Rhinologists are often criticised for over-operating on the nose in asthma without getting a result. This may be a just criticism. It is certainly so if only part of the infection has been removed, as we often see a removal of the middle turbinate or a partial ethmoidectomy, but I am firmly of the opinion that if there is hyperplastic tissue in the nose and that patient has bronchial asthma, they will not be helped of their asthma, no matter what else is done for them, unless the infection and hyperplastic tissue is thoroughly removed from the nose, or whatever accessory sinuses are affected. Then if relief is not forthcoming, I think that the explanation given by Dr. Moore is very plausible—that is, that the bronchial tree has become infected, the secretions are retained there and are keeping up the trouble. You may remove an infected tonsil, or tooth, in a case of severe arthritis, and you do not get a result because the infection is being kept up in the joint itself; the same applies in the case of the large bronchial tree.

T. E. Carmondy, Denver: I am glad to see that bronchoscopy in suppuration of the lungs has come into its own. I have been interested in it for a number of years, and followed Yankauer and Lynah, who were the first to take it up. In fact, one of the first papers that was read on this subject was mine, read some years ago, and then Dr. Jackson thought it amounted to nothing. I am glad to say that the Bronchoscopic Clinic has decided that it does amount to something, and that they are doing wonderful work; and I want to thank Dr. Moore and Dr. Lukens for their demonstration this morning. One point brought out

by Dr. Moore, and that is, that this suppuration begins in childhood. The reason it begins in childhood is because the sinuses are infected in childhood, and we know a great many of these cases have sinus trouble, as Dr. Mullen has brought out, and the sinuses, especially the maxillary sinus, is affected very early. Dr. Mullen believes that a great many of these cases are embolic. I believe they are practically all aspiration cases. Lynah at Willard Parker Hospital some years ago bronchoscoped tonsillectomized patients that had been tracheatomized, and found blood in the trachea every time. Myerson of Brooklyn has gone one better, and bronchoscoped one hundred cases and found blood in the trachea in every case. Some lung abscess cases follow appendectomy or other abdominal operation. I believe the fact that these cases have not vomited means nothing; they have brought out enough secretion from the stomach and have aspirated and infected the bronchi. In outlining the cavities, I have used the bismuth powder, but the last few months I have used lipiodol. Postural treatment, Dr. Mullen has covered very thoroughly, and I believe as he does. There is one point spoken of by Dr. Moore, and that is that they do not use general anaesthetics. I believe that a general anaesthetic in some of these cases, ether makes it easier, especially the first bronchoscopy in some cases that are a little nervous and feel they cannot stand it, also ether liquifies pus by increasing secretion. Nevertheless, you can prove to these people that you can do it under a local anaesthetic, and many of them will get along all right, especially if you give them morphine in the first place. The results of the treatment: I have had one case that I aspirated forty times. That was an old case lasting something like twenty years. Infection, I think, has been covered well. The washing: It is not necessary to wash many of these cavities. You might get the idea from what has been said that we wash many of them. You simply use the aspirator, but the washing, as Yankauer brought it out, is necessary if the pus is very thick.

H. J. Corper, Denver: Quite a number of years ago, about the time that Dr. Yankauer gave his first paper on the treatment of pulmonary abscesses, we carried on a series of cases in Denver at the General Hospital. As I recall it, there were about twenty or twenty-five cases. These were asthmatic cases and not long suppuration. Fortunately, we don't see very many lung suppurations. The map of the United States, as shown by Dr. Lukens in his slides, shows that in Colorado we had eight cases—that is, eight reported cases. Over how long a period, I don't know; he didn't say. We do see the usual amount of asthma at this time. Bronchoscopy was rather a formidable procedure, not only in the mind of the physician, the general physician, but also in the mind of the patient. We had a great deal of difficulty getting our patients to come back after the first procedure. They were willing to try it once, but the second time it took a great deal of persuasion. Those cases that received results were quite anxious to try the second time. I was interested in Dr. Moore's percentages of recovery in those that were of acute bacterial origin. He reported about 25 per cent recoveries. I think I had the same percentage of recoveries; of course, with a great many fewer cases than he had. I still have a young lady that every time she gets an acute bronchitis she has an attack of asthma. She comes to the office, and we bronchoscope her, suck out what secretion we can and spray in about 5 or 10 per cent sulphonol solution, and she

goes away happy and has no further trouble after that particular attack of bronchitis. The cases we show, we do not have the microscopic examination such as Dr. Moore has worked up, as elaborately as he presents it. The cases that showed on bronchoscopic examination more acute inflammation were the ones in which we got the better results. Those cases that showed very marked paleness of the bronchial tree, or extended over a long period of time, we got no results.

C. O. Giose, Colorado Springs: I just want to add one word from the standpoint of the internist. Sometimes cases that have had bronchial suppuration from childhood develop tuberculosis. I can mention one case that has had a cough ever since he can remember. He was diagnosed as a double bronchiectasis by Dr. Brown some seven or eight years ago, spent two or three years at Saranac Lake, or in that vicinity, about two years ago developed a fever and perhaps a little different type of cough, came to Colorado and had tuberculosis in the left upper lobe with positive sputum. I mention that to show that once in a while these cases of long-continued suppuration do develop tuberculosis. On the other hand, there are cases of tuberculosis that have practically or entirely healed that have suppurative processes in the lungs where the same considerations or same things have to be considered as in the ordinary case of non-tuberculous suppuration. We have seen one or two such cases as that, cases of definite tuberculosis with a very marked fibrosis, where the tubercle bacilli have long since disappeared from the sputum, and still the case has a definite suppurative process which is apparently non-tuberculous in character.

O. M. Gilbert, Boulder: May we ask the speakers to emphasize a little more the distinction as far, as may be, from bronchiectasis and lung abscess, as it has a very practical bearing upon the type of case that should receive this sort of treatment. I had the good fortune this summer to see the use of lipiodol both in Paris and London. In Paris there were marked results. In the Swiss Alps they are inclined to use cocaine. They use cocaine there more freely than I have ever seen. There is no hesitancy in using a large swab three times in the larynx. A doctor says he has used it in 23,000 cases and never had anything in the way of cocaine poisoning at all, so that it is something that we do not do in this country. I wonder whether or not we are too timid. I have used lipiodol and it has certainly been a wonderful aid in diagnosis. Multiple bronchiectasis has been one of the things that has baffled us more than anything else. If bronchoscopy is doing some thing substantial for these cases, it is a great thing.

Dr. Lukens (closing): In regard to Dr. Mullen's question about bronchiectasis—these cases are much less amenable to bronchoscopic treatment than the lung abscess cases. We have treated a comparatively small number of bronchiectatic cases. They are usually of long standing and very difficult to drain satisfactorily. We have one patient, the little boy shown on the screen, the last picture, whom we have bronchoscoped for three years. We have done over 100 bronchoscopies on him; his lesion is bilateral bronchiectasis. He coughs up enormous quantities of pus daily, although his general health appears very good. About six months ago we found that practically the entire right side had become normal—that is, to X-ray, physical findings and bronchoscopy, there being no pus coming from the right side. However, the left side continues to

drain, but to a much less degree. Last winter he passed through a very severe attack of scarlet fever and made a perfect recovery. We are inclined to feel that if his lung condition had been as bad as previously he would more than likely have succumbed. So we feel that in bronchiectatic cases, while they certainly should be bronchoscoped, the recovery is very much slower than in the average lung abscess cases. They are the less desirable cases for bronchoscopy. As I said before, the more acute the case, and the earlier it is seen, the better results we get. In regard to influenza and pneumonia: In our series, influenza is about half way down the list as regards frequency. Many of these post-pneumonic patients come to us with history of pneumonia, although it was difficult to say whether they were post-influenzal or not. We found quite a few with influenza bacilli in the secretion. I did not mention tuberculosis and lung abscess combined. We have a few cases which have healed tuberculous lesion. We made no attempt to bronchoscope anybody who had active tuberculosis. We feel that it is a very risky thing to touch active tuberculous patients with the bronchoscope. We never even attempt it. The lesions are widespread, as a rule; and even where there is localized activity in only one lobe it is better to withhold bronchoscopy.

EYESIGHT AND GENIUS

The Eyesight Conservation Council of New York, in a recently published report on the menace of blindness, devotes a chapter to certain celebrated men, most of them of the present age, whose life work represented a continuous struggle with this affliction. Two of the most distinguished American historians—Parkman and Prescott—were troubled with extremely defective vision. Parkman's eyes were so weak and caused him such continuous suffering that, in spite of an ingenious contrivance he invented for writing, progress on such an important book as the "Conspiracy of Pontiac" for some months did not exceed three or four lines a day. Sometimes the pain was so intense that, as Parkman wrote, "I could neither listen to reading nor engage in conversation, even of the slightest."

Other Americans who suffered, though not so acutely, were Whittier and Margaret Fuller. Margaret Fuller was so nearsighted that, as a young girl, "she danced quadrille very awkwardly, she could hardly see her partner." Whittier's trouble—an unfortunate one for a poet—was color-blindness. He could not distinguish between red and green. The red apple and the leaves of the tree looked to him exactly the same. His mother discovered the defect when Whittier was 6 years old. He was in the fields picking wild strawberries and could see no difference between the color of the berry and the leaf. "I have always thought the rainbow beautiful," he once said, "but they tell me I have never seen it. Its only color to me is yellow."

Swift, in his later period, had the utmost difficulty in reading print, and for the last twelve years of his life was dependent upon the eyes of others. "Oh, my poor eyes," wrote Balzac in 1850, the year of his death, "once so good! I can no longer read and write!" Nietzsche, at the age of 33, was almost blind: "I cannot write," he recorded, "but must use the pen and hand of my sister." George Eliot and Wordsworth suffered in different degrees from eye defects. Chaikovsky's work represented a continuous struggle against the same handicap.—World's Work.

THE NEEDS OF THE BLIND AND THE NEW COLORADO LAW*

EDWARD JACKSON, M.D.

DENVER, COLORADO

The law creating a State Commission for the Blind, enacted by the last session of the Colorado Legislature, and signed by Governor Morley, April 25, 1925, marks a forward step in the general attitude of this state toward a portion of its citizens; who have had in the past a great deal of sympathy; and comparatively little opportunity to live self-sustaining, self-respecting lives. It is a step from the attitude of throwing pennies to a blind beggar and leaving him to beg; to the attitude of understanding and giving opportunity to a fellow citizen who has the same desires and needs as the rest of us; except that by the lack of one sense he is compelled to make better use of his other powers than the rest of us have ever learned to do.

The passage of the bill for this purpose was secured in the House of Representatives by your representative from Colorado Springs, Frank Mobley. Himself totally blind, a young man attending his first session of the legislature, a majority of whom were opposed to him on issues that excited the strongest feeling during the legislative session, he obtained an influence that made the passage of this bill possible, through the House. In the Senate, it had the intelligent support of three members of whom this Society may well feel proud. Dr. John McFadzean of Del Norte, Dr. Royal W. Calkins of Cortez, and Dr. W. W. King from Cripple Creek, all experienced in legislative matters, and highly respected by their colleagues; gave this bill such intelligent and earnest support, that it passed the Senate, when that body was largely engaged in defeating measures that had received majorities in the House. Although Governor Morley had not included this measure in the list of those he had recommended to the attention of the Legislature, it so clearly represented the best principles of administrative consolidation which he urged that he promptly signed the

bill, without special appeal or further debate as to its merits, and has since done what he could to make it effective.

Prior to the passage of this bill, Colorado had three distinct agencies created to assist the adult blind. The Board of Control for the State Workshop for the Blind was trying to give a few, perhaps 3 or 4 per cent of the blind in the state an opportunity to earn a living, by making good brooms, with help to sell them. The State Teacher for the Adult Blind was doing all that one blind woman could do, to lessen the handicap of blindness, by teaching them to read the various forms of raised type for the blind and certain forms of home work that could be carried on by individuals. The State Blind Benefit Commission was endeavoring to award blind benefits to such as applied for them; under the handicap of no effective means of finding out whether, or not, these applicants were really blind. And these agencies were naturally working with little cooperation with each other, and sometimes quite at cross purposes.

These three agencies have been replaced by the single Commission of five. It is specifically stated that, "The main object of this Act is to aid the blind to become self-supporting, rather than to afford them permanent support at public expense." The law seems to be as well planned and promising as any law for this purpose that has been put in operation anywhere. But no legal enactment executes itself. Its possibility of doing good rests on two things, intelligent and conscientious effort on the part of those charged with the administration of laws, and general and hearty support in the community. Those charged with the carrying out of the provisions of this law may be as competent and earnest in the performance of their duties, as most persons chosen, or appointed to public office. But the achievement of its purposes depends very largely on the understanding and support of it, by the people of Colorado. There are many points in which such understanding and sup-

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port will be necessary. The best use of the time we can give to this subject this morning will be to emphasize the point that is most important that the law should be understood and supported by the physicians of Colorado. Its success will depend largely on the reaction of the profession throughout the state to these needs.

Who Is Blind?

The working, the practical value and success, the permanent good to the blind, or to the community, of any law intended to help the blind, depends first on finding out, who is blind? Most of the people in Colorado are willing to receive any money or assistance legally coming to them, many are ready to meet the bounty of the state half-way by putting in a claim for anything they have a chance of getting. Some are even willing to do this without any consideration of the justice of the claim they make, or much thought beyond the possibility of putting up a sufficiently plausible pretence of blindness. There are all grades of imperfect vision in the community from absolute blindness up to standard vision. Since it is impossible to decide the matter by the statements of applicants for benefits, who is to judge whether a particular applicant has, or has not, the impairment of vision that would entitle him or her to benefits under the law?

It was with some understanding of the importance of correct determination of the reality of blindness, claimed, that the Legislature placed in the new law the provision, that the evidence submitted by the county boards with reference to each application shall include "the results of an examination by a competent oculist, who shall include in his report a complete record of the case and whose fee shall be paid by the county." Evidently this is to be done only by one who has had complete medical training, who has mastered the instruments and methods used in the examination of the eye, who has become familiar with the manifestations of disease in the parts of the body concerned in vision, and who has had the experience necessary to correctly estimate the probable effect on vision of the conditions observed.

Unfortunately there are counties in Colo-

rado where no such expert is to be found. But this kind of testimony is essential to the just and effective working of the law. Its importance should be understood by every County Board and every member of the medical profession in the state. County boards should seek assistance of experts from outside their own counties; and members of the medical profession who are able to render such assistance, should recognize it as a true public service, to be performed even for inadequate compensation. The State Commission under its general powers of "making such further investigation and requiring such further affidavits or other proof as to it shall seem expedient," may also give some assistance in this direction. But the greatest usefulness of the statute can only be developed by the mutual good understanding of State Commission, County Boards, and the Medical profession, with acceptance of responsibility by each, and hearty cooperation in carrying out the common purpose.

Fortunately for the demands of justice and humanity, it is possible to determine with reasonable certainty, in any case, whether a certain person is or is not practically blind; that is, "unable to follow any common occupation by use of vision." An investigation of this subject seems to show: "Except in amblyopia, congenital or associated with squint, blindness is always associated with objective changes that declare the sight has been greatly impaired, and often furnish the most important evidence of how great that impairment is."

By thorough acquaintance with the various reactions of the pupils, the involuntary variations in convergence to avoid diplopia, the significance of differences of color in the optic nerve head and retina, the effects of opacities of the cornea, crystalline lens and vitreous; by familiarity with ophthalmoscopic appearances, normal and abnormal, to detect or exclude disease of the parts; one is able to state from objective evidence that any eye is or is not blind. There are blind eyes that can be recognized and certified as blind by any physician, almost at a glance. But in these cases the exact lesions

should be described, so that it may be known what prospect there is for relief from blindness by operation. An eye may have cataract, but it may also have glaucoma or optic atrophy so that removal of the cataract will be of no benefit whatever. This point is just as important as the existence of the cataract; for the law provides that, "in cases where the blindness of the applicant can be removed, wholly or substantially, by medical or surgical treatment, relief shall consist only of payment of necessary expenses of such treatment."

It will greatly facilitate the working of the law, save unjustified hopes, conserve the funds of the state and counties devoted to the assistance of the blind; and do most for their real happiness and usefulness in the community, if it is made clear that the examination and certification of the blind in Colorado is done by the medical men who have the training, experience and willingness to sacrifice time to the thorough study of these cases. There are less than 1,000 blind people in the state. The careful and thorough examination of all who seek public aid will discourage applications from those who are not blind. The whole practicality of relief for the blind rests on this certain recognition of blindness; and detection of malingering. It is worth while that every citizen and public official shall recognize, that the relatively small expenditure needed for this purpose, will make for justice, humanity, benevolence and public economy.

One other thing the members of this society can do to help the blind and the state—give early notice of the existence or occurrence of blindness. The state commission can only give blind benefits to persons over 40, who have resided in the state 5 years, and 3 years in the county in which they apply. But treatment for the removal of blindness, and educational assistance can be given at once, and should be given as soon as possible. One of the reasons for withholding money payments from young people, or those recently blinded, is to force them to seek help through rehabilitation re-education of their own powers; that they may again become self-supporting and enabled to exer-

cise the powers that remain to them; often heretofore latent, but the exercise of which may become the source of their greatest happiness.

Then at the time of becoming blind the patient is in the greatest need of moral support from others. For a seeing person to lose his sight seems to him to be subjected to the greatest possible affliction. Those who are born blind, or who become so in early infancy, never have this feeling. It is the depression that comes to all adults at the beginning of blindness, at the prospect of losing what has been up to that time the main avenue of communication with their fellows, the main source of pleasure and support, without any adequate understanding how much of ability and opportunity remain to them, that constitutes the real terror of blindness. It makes the essential difference between the problems of blind children and those of the adult blind. It was his understanding of this, and of how it could be removed, that enabled Sir Arthur Pearson at St. Dunstan's to render his great service to the blinded soldiers of the World War in Great Britain. He demonstrated that the blind can do things, can fill useful positions in society, can enjoy life.

But such things cannot be done by saying that they are possible, or passing a law which might be made helpful to the blind. Sir Arthur started by convincing people that they were possible. It is a big undertaking to convince a million people that such things are possible. It is an undertaking worthy of the membership of this society, to help rehabilitate the blind; and put them to useful employment in the community, doing many necessary things that blindness does not prevent them from doing, and the doing of which would render them self-sustaining and happy.

An adult becoming blind is subject to three handicaps:

First: His own idea of blindness formed when he had sight and knew nothing of blindness.

Second: The same idea in his family, causing them to surround him with pity and

seek to do for him things that it would be infinitely better for him to do for himself.

Third: The same idea in the community. The blind man is regarded, not as one who has to change his business, or to do his business in a different way, as many a seeing man has to do; but his plight is set down as hopeless. He can do nothing, let us give him a little charity and forget him.

That view is false. An automobile with no gasoline in the tank, or a run down battery, or a watch with a broken main spring is utterly useless, but do we throw these into the junk heap? Let us learn what blind men can do and are doing. Layton and Lindsay in Montreal, both blind from youth, are conducting the largest general music houses in Montreal, the fifth city in size of North America. Hartman is at the head of the Sight Saving Classes Department, of the Seattle Public Schools. Babcock of Chicago is a most highly respected consultant in cardiac disease; and there are many others. Let us recognize that blind men and blind women have powers, valuable to themselves and to the community. Let us help them to opportunities to develop those powers and to use them. Colorado needs the developed powers of every blind man and woman within its borders, let us bring human energy and boundless natural opportunities into relation with one another; and we will all share the benefit.

DISCUSSION

G. A. Boyd, Denver: This is a very important paper and it takes up a human problem from a rational and scientific standpoint. If you have listened carefully you will have recognized that in Dr. Jackson's paper is a great purpose and we are all responsible for carrying out the suggestions in the outline presented by Dr. Jackson.

Wm. H. Crisp, Denver: From Dr. Jackson's paper, few would realize what Dr. Jackson's part has been in causing this very substantial and important change in the state law in regard to the blind. We had an initiated law, which was passed some years ago, and which was so framed that it lent itself to the worst kind of abuse. Thus there was placed in charge of the administration of the law an official whose influence was strongly exerted toward the indiscriminate granting of pensions. Many of these pensions were granted to people who had other means of support, although the law was supposed to provide that the pension could not be obtained if such means of support existed. In some cases we even had very clear evidence that people who were blind, or sometimes who had rather fairly satisfactory vision, were solicited to present applications for pensions, and their applications were railroaded

through without regard to the reports of oculists throughout the state, who, in a number of instances, had clearly indicated that these people were not blind, that is to say they had not lost a sufficient proportion of their vision to be incapable of carrying on ordinary occupations. Instead of this chaos, and principally by the efforts of Dr. Jackson, a new law has been passed. It is probably a model law of its kind. The great thing that Dr. Jackson has indicated to you is not to encourage the blind person to accept his blindness as the final fact of his existence, not to encourage him to lament what he has lost, but to encourage him to discover what he still possesses and to use it to the best of advantage. The institution created in London by Sir Arthur Pearson, himself blind, is a wonderful thing. At this institution the effort is made throughout to render the blind person self-reliant; he is encouraged to do everything he possibly can. He is helped only at points where his existing faculties will no longer take care of him after he has learned how to use them. One interesting thing to me in going through that institution was the psychological effect of having blind people teach the blind. In a number of the workshops that one goes through at St. Dunstan's, one sees a blind man seated beside a blind man and teaching him to do something that to most of us would seem to require the use of sight, and yet it can be done by touch. I hope that we are going to see, within the limits of our population, a very considerable development of this same spirit in Colorado. The new law will provide for the coordination of existing agencies for the care of the blind which in the past have been working independently and without proper cooperation.

C. D. Spivak, Denver: May I ask Dr. Jackson as to what provisions exist in this state for people who are blind before they are 40 years of age? I understand this law only concerns people who become blind after they have reached the age of 40. I mean, what possibility is there for these people to learn a trade? Is there such an institution where they can go? These people are just as unfortunate after they have reached the age of 40, and are left to themselves. Are there such agencies? Is there in contemplation that there should be such agency to help these people?

Dr. Jackson (closing): The provision for blind children through the School for the Deaf and Blind, at Colorado Springs, is the sole provision made for blind children in the state. It is supported by a mill levy, has been very well developed under careful management and is practically a model for such institutions. It will take care of any of the blind up to the age of 21. They have extended the limit by special action of the board in particular cases, to include those over the age of 21. That provides very well for those who are born blind or become blind in early childhood. The idea that was first entertained with reference to a new bill for the blind was to include all agencies under one head, one commission. But an examination of the working of this school seemed to show that it could not be improved on, that it was well provided for by the funds from the mill levy; and, more important, the problem of the adult blind is entirely different from the problem of the blind children.

In the blind child, it is simply a problem of education by a little different method, and little different apparatus, from what would be used for seeing children, and it can best be done by seeing people. It is not well that blind children should associate entirely with the blind. So that it was very early decided that the present provision for

the children ought to be let alone. Now, the provision for adults: There is no provision for the payment of blind benefits, giving money or support to the blind before the age of 40; but all the other agencies, that can be brought to bear on the needs of the blind, are available for anyone from 21 to 40, under this commission. That is why we want to get reports of those who become blind in early adult life.

When they first become blind, it is very desirable that they be brought under proper influences. It is going to take years to organize a department that will be effective for Colorado, because there are special difficulties to be met. It is desirable to get these people as they become blind, and during the first few months of blindness, by bringing them in contact with blind people, who have already overcome the handicap of blindness to a very large extent. Most of us haven't any conception of how this handicap can be overcome. A year ago I was in Montreal, and met Mr. Layton, President of the School and Workshop for the Blind. Mr. Layton came from London to Montreal without any money. He was a musician, but could not get a position as a musician. He was, however, a good piano tuner, and not being

able to get a position as an organist, he took up the second choice, the music business, and afterwards took his brother into partnership, and formed the partnership of Layton Brothers. They have 52 employees in Montreal, the second largest business of its kind in the city. The head of the largest business in this line in Montreal is Mr. Lindsay, who has been blind from his youth.

Sir Arthur Pearson was in this country in 1921, and one of his friends, who entertained him in Chicago, said he would not be helped at the table with his food, that the waiter brought him a platter of fried chicken, and he would transfer a piece of this chicken from the platter to his plate, and prepared it entirely himself, and did that with all his food. When he was taken on the streets, he would not allow anybody to lead him across the street, in the Loop district of Chicago. He waited and depended upon his hearing until he felt the street was clear, and then he started across and got safely to the other side. The possibilities of what a blind person can do can only be appreciated by seeing what they have done; and I hope a good many members of this Society will devote their attention more to this subject.

EMPHYEMA IN CHILDREN*

GEORGE B. PACKARD, JR., M.D.

DENVER, COLORADO

It is not the purpose of this paper to present anything new or original in the treatment of empyema in children. Its aim is rather to show what results can be obtained from the use of a closed method painstakingly followed in all its details and indications. A recent resume of my last thirty cases operated at the Denver Children's Hospital brings out some conclusions that I believe are worthy of presentation.

Much has been said since the war about this or that man's new closed method of empyema drainage. In this connection it is interesting to note that in 1873, an aspiration method was advised by Playfair (1). His technique was used by Dieulafoy (1) and described by him in 1878. In Germany also in 1891, Bulau (2) described a tube for chest drainage which he introduced by trocar. This type of drainage has been used from time to time but it has been only since the war that it has met with wide favor. The tremendous mortality of post-influenzal empyema in 1918, the recognition of the dangers of pneumothorax, and the newer methods of

chemical sterilization have been the factors which have swung the pendulum away from open drainage and rib resection.

Empyema ordinarily is a complication of pneumonia, lobar more frequently than bronchial. It may originate in one of two ways. Either a sterile effusion about a pneumonic process gradually becomes purulent, or the large amount of fibrin, sometimes deposited in the pleural cavity, breaks down into thick pus. Serous fluid is always free in the whole pleural cavity; purulent collections are always encapsulated. The pneumococcus and the streptococcus are usually the infecting organisms, more frequently the former. The streptococcus is more often present in the less turbid fluids. Symptoms of fluid collection may appear almost synchronously with the pneumonia or not until many days after. Unoperated, the empyema may cause death from sepsis, may last for months and be mistaken for tuberculosis, may point and drain (though inadequately), or exceptionally in the mildest cases be eventually absorbed. Good results, to avoid death, chest deformity or chronic empyema, demand evacuation of pus at the proper time and in a thorough manner.

*Presented at the annual meeting of the Colorado State Medical Society, Colorado Springs, October 29-November 1, 1925.

The cases under consideration here are my last thirty cases operated at the Denver Children's Hospital for empyema complicating pneumonia. They do not include cases operated elsewhere nor one case of traumatic empyema treated at the Children's Hospital. The patients ranged in age from 1.3 to 17 years. The average age was 5.8 years. Six of the patients were 2 years or under. Over two-thirds of the patients were males. The average duration of empyema symptoms or signs before operation was 3.1 weeks. In 71.4 per cent, the infecting organism was the pneumococcus, in 20 per cent the streptococcus, and in 9.5 per cent a combination of the two. We had none of the staphylococcus.

Treatment

The treatment of empyema may be divided into (1) the time of operation, (2) the anaesthetic, (3) the type of operation, and (4) the after-treatment.

(1) The Time of Operation—This is probably the most important factor in the whole treatment of empyema. The mediastinal structures forming a septum between the right and left chests are very lax in the child. An influx of air into one chest causing collapse of that lung will push over the mediastinum and seriously embarrass the opposite lung and the circulation. When pneumonia is still present, and the fluid is clear or only slightly turbid, then there are no limiting adhesions, the fluid is free in the pleural cavity and an opening in the chest wall is an extremely dangerous thing. When the pneumonia has subsided, this fluid is encapsulated by newly formed adhesions, an opening in the chest wall causes much less lung collapse, and the opposite lung is much less disturbed. The mortality of operation at this stage is about one-half that of operation in the presence of active pneumonia.

Our rule is to leave these patients alone surgically during the active pneumonia except to aspirate the fluid as necessary to relieve the pressure on the heart or opposite lung. This needle aspiration may be repeated as often as desired and gentian violet may be left in the cavity for sterilization.

When the active pneumonia is over and the fluid becomes purulent, then prompt operation is indicated.

(2) Anesthetic—Sixty-six per cent of our cases were operated under local infiltration anesthetic, 27 per cent under gas and oxygen, and 6 per cent under ether. Local anesthesia is generally the choice. We have had no unhappy results with gas and oxygen, and if it is given by a good technician with plenty of oxygen, I am not sure that it may not be the most satisfactory form. In frightened and exhausted patients, the mental shock is largely avoided by general anesthesia. Ether should be used under no circumstances. It was used in two cases where gas was not easily available, but I do not believe now that it is justifiable to use an anesthetic that can so easily light up a subsiding pneumonia.

(3) Operation—There are 2 general types of operation, namely, the open and the closed. The open operation consists of rib resection and drainage at the most dependent point or of opening the chest widely between the ribs and draining with a rubber tube. In the closed method, a catheter or tube is inserted through a very small opening between the ribs so that continuous or interrupted suction may be instituted without leakage of air into the chest cavity. To either of these methods may be added irrigation or instillation of an antiseptic solution.

In this series, 25 were operated upon by the closed method, 5 by the open, the former being used wherever possible. Open operation was selected 3 times in long-standing encapsulated empyemas where it was thought more than one pocket might be present. It was selected once when the closed method failed to strike pus, and it was used once to drain a pocket after closed operation. These cases were all followed by irrigation with Dakin's solution.

In the 25 cases in which the closed treatment was employed, the method was practically the same as that described by Mozingo (3). A tiny incision, through the skin only, is made between the ribs, if possible fairly low and toward the axilla. A well-greased

trocár and cannula is pushed into the chest cavity. As the male portion of the instrument is withdrawn, a tightly fitting catheter is inserted through the cannula. The catheter is clamped and the cannula removed. With a one ounce syringe, the pus is aspirated, but not more than 200 c.c. at this first time. The catheter is fastened to the chest wall by adhesive and silk thread. The catheter is kept clamped so that no air can enter the chest. We have then a 16F. catheter reaching about 3 inches into the empyema cavity tightly fitting an intercostal puncture wound and clamped so that no air leaks through or around the tube. This simple procedure may be done in the patient's room if desired.

(4) Post-Operative Treatment—On this depends the success or failure of the Mazingo method. A conscientious nurse or well-instructed parent is an absolute necessity. Twice in 24 hours the cavity is washed out with Dakin's solution until the fluid returns clear. Besides this, every 2 or 3 hours during the day and twice during the night, the accumulated secretion is aspirated with strong suction, and then 2-4 drams of Dakin's solution injected, but no air. Thus we have an airtight cavity always under some negative pressure, and bathed at all times in a solution which is antiseptic and has a solvent action on fibrin.

The frank pus disappears in a few days, the discharge becoming mucoid and scant, while at the same time the cavity rapidly shrinks to about an ounce in size. This treatment is steadily followed until the discharge becomes practically sterile. When the microscope does not show more than one organism in several fields, or when the fluid returns clear for 2 or 3 days in succession and the cavity does not hold over an ounce, the catheter is withdrawn and a sterile dressing applied. There is rarely any further drainage. Once in a while the catheter has to be reinserted.

Four or five days after operation, there may be slight leakage about the catheter and the dressing may require changing. In case of more than slight leakage or if the catheter becomes plugged, it is withdrawn

and another, usually slightly larger, inserted.

The essential points in this treatment are (1) incision with scalpel through skin only, (2) catheter must fit very tightly, so tightly that oil must be used, thus giving a snug fit in the chest wall, (3) catheter must be tied with silk or string, not retained by pin which allows air leakage, (4) local aspiration and irrigation must be done by a person who is conscientious enough to follow the schedule rigidly, and competent enough to aspirate and inject solution without allowing influx of air and loss of negative pressure. These qualifications sound commonplace but are not always easy to find.

The 25 closed cases averaged 27 days' drainage, ranging from 7 to 85 days. The 5 rib resections varied from 18 to 120 days plus, averaging over 54 days. One secondary operation, a rib resection, was required in a closed case that pocketed. No death could be ascribed to the method used, though the closed type was done in some cases that we thought could not possibly stand a rib resection. There seemed to be markedly less chest deformity in the closed cases than in the rib resections. Every case is solidly healed except one rib resection which is still draining after 4 months.

Prognosis

The mortality of empyema is very high in early childhood, especially during the first 2 years, after which it steadily diminishes will show how these mortality figures run, till almost zero in the teens. A few reports

Brown (4)—Children's Hospital of Philadelphia—259 cases up to 8 years of age—mortality—26.2 per cent.

Spence (5)—Babies' Hospital of New York—177 cases up to 3 years of age—44.6 per cent mortality; under 2 years of age—60 per cent mortality.

Comby (6)—Paris—107 cases up to 5 years of age—54.2 per cent mortality—during the first year over 70 per cent died.

Ravdin (7)—Children's ward of University Hospital of Philadelphia—38 cases up to age 13—38 per cent mortality.

Ladd and Cutler (8)—Boston Children's Hospital—268 cases—17 per cent mortality—35 per cent mortality under 2 years.

Cameron and Osman (9)—Guy's Hospital, London—52 cases under 2 years—39 died.

Pybus (10)—London Hospital for Sick Children—100 operated cases—mortality—24 per cent.

Next to the patient's age, the time of operation is the most important individual factor affecting prognosis. A few figures may be quoted here, too.

Rodman (11)—45 per cent mortality after early operation reduced to one-half that by early aspiration, and operation only after formation of frank pus. Gage (12) reports in his army cases a mortality of 40 per cent when operated within a day of onset, but only 5 per cent in cases operated 3 or more days after onset. Cameron and Osman (9) state that patients operated upon during the synpneumonic stage most always die, while those operated in the metapneumonic stage nearly always recover.

In our 30 cases, there was one death, a mortality of three and one-half per cent. This patient was under 2 years of age, giving the 5 cases under 2 a mortality of 20 per cent, and the 25 cases over 2 a mortality of zero. The death occurred in an active pneumonia, in which both sides were involved, besides the ears and later the meninges. There was one other death in a ruptured esophageal stricture which is not included here as not being a post-pneumonic empyema.

Mortality figures in empyema are subject to great variation depending on the method of reporting. The mortality of empyema is the mortality of the accompanying pneumonia plus the mortality of its complications. Some clinics are more zealous than others in searching for early empyema in moribund pneumonia patients. If one waits till pneumonia is over with its high mortality before operating, then he has the more resistant patients to deal with, and consequently has a much lower death rate. This is the more marked but is independent of the fact that too early operation is often a direct cause of death. I am presenting here only operated cases, most of which were operated upon after pneumonia, and am not considering the suspected cases that died during

pneumonia. This of course is one main reason for the very low mortality rate.

Complications

Of some interest may be the complications encountered in these 30 days. Their early recognition and treatment is of course advisable.

Otitis media heads the list occurring in 23 per cent, almost one-fourth of our cases. There was no mastoid involvement. Acute nephritis with pus, blood and casts in a scanty urine and with edema occurred in 4 or 13 per cent of our cases. Secondary pneumonia, 8 to 10 days later, was seen twice. There was one case each of myocarditis, endocarditis, erysipelas, chicken pox, meningitis, and subphrenic abscess.

Conclusions

(1) **The Time of Operation**—Operate after the pneumonia when the fluid becomes purulent. If the amount of fluid is a mechanical embarrassment, aspirate one or more times with a needle. Theoretically the closed method of operation can be done during the acute stage of pneumonia, but practically it increases the burden and the risk. On the other hand, drainage of empyema as soon as formed, or as soon as possible after the acute pneumonia, avoids general infection and death, not to mention that preventable misfortune, a chronic empyema.

(2) **Anesthetic**—Ether should not be used.

(3) **Operation**—I prefer the closed operation because it is less trying to a sick patient, is less dangerous, can be done with safety earlier than a rib resection; because there are no odorous, slimy dressings for the patient to endure; and because it gives the shortest possible convalescence and the least chest deformity. The closed method has one definite disadvantage. The patient requires frequent local treatment by a competent attendant. If he cannot have frequent after care, a rib resection will prove the more satisfactory. Multilocular empyema requires rib resection.

(4) **End Results**—The mortality of this series is extremely low. The average duration of drainage after the closed operations

was less than one-half that after the rib resections. The closed operations were followed by a minimum of lung collapse, chest deformity and scoliosis.

I have not mentioned the measures of supportive treatment, the necessity for increased nourishment and sunlight, nor the calisthenic aftertreatment. I have tried to limit myself to the points in which this treatment differs from some others, and to those points which I think are essential for success. This is a small number of cases and not sufficient for general conclusions, but we at the Children's Hospital have felt very much pleased at the more speedy convalescence and the lower mortality of our cases since abandoning too early operation and open drainage.

DISCUSSION

J. H. Woodbridge, Pueblo: I wish to compliment Dr. Packard on this excellent paper, on the clear and orderly way in which he has taken up this subject, and also on the good results he obtained in this series of cases.

1. As to the time of operation, I find among writers there is quite a unanimity of opinion that the best results are obtained by a late operation—after the subsidence of the pneumonic process. Dr. Horace Binney reports from a series of cases at the Boston City Hospital that in those operated within a week or two following the onset of the disease the mortality was 25 per cent, and in those operated in the third week, or later, the mortality was 11 per cent.

2. As to the anaesthetic, the point Dr. Packard made as to the avoidance of ether anaesthetic is well taken. There is much danger of ether rekindling the pneumonic process. Dr. Wm. E. Ladd gives secondary pneumonia as the most common cause of death in operating cases of empyema. This operation, with the gentle technique Dr. Packard has described, is well adapted to a local anaesthetic.

3. The closed operation is eminently preferred for empyema in children. It has three distinct advantages over the open method with rib resection:

(1) It minimizes the degree of collapse of the lung.

(2) It exerts a constant negative pressure, furthering the expansion of the lung, and promoting a diminution in the size of the empyema cavity.

(3) It greatly reduces the chances of contamination with an extraneous organism—which is prone to occur with the open operation.

The use of dye solutions in purulent infections seems to be quite the vogue. Dr. Ralph Major of Kansas City reports 57 cases instilled early in the disease with a solution of Gentian violet, only 12 of these cases coming to operation later.

Dr. Pierre Woringer (a French physician) reports unusually good results from the use of ethylhydrocuprein in pneumococcic empyema; first aspirating, and then instilling the drug. He used this drug because he had previously found it specific for pneumococcic conjunctivitis. How-

ever, most writers agree with Dr. Packard in preferring Dakin's solution for irrigation after operation. I have no doubt that much of the good results that Dr. Packard obtained can be attributed to the painstaking postoperative care he has described in his paper.

J. B. Hartwell, Colorado Springs: I feel, as Dr. Woodbridge does, that Dr. Packard's excellent mortality figures are less the result of the type of the operation that he did than of the time he chose to do his operation. I think the most important part of his paper is with reference to the time for operating on cases of post-pneumonic empyema. He has emphasized and demonstrated by his series that aspiration not only may be done, but may be wisely done, and that there is no objection to repeated aspiration in the sick child during the pneumonic process. He does not operate until after subsidence of the pneumonia. I cannot deny that where it works well the closed operation is the operation of choice; but in order to make the closed operation a good one, it is necessary to have your patient under surroundings which are almost ideal. It is necessary that the patient should have a most competent nurse, who is most conscientious, and who knows how to inject the anti-septic solution or the dye, and it is not an operation which can be done anywhere by anyone. My own experience with empyema and the use of Dakin's solution has been rather unfortunate. In the majority of cases I have done by the closed operation, I have had to resort to rib resection later in order to get my cure. I do not think that the lung collapse following the open operation is such a terrible thing, because at the time the operation should be done the lung is well bound down by very firm adhesions. I think, too, that empyema in children and empyema in adults is quite a different disease. Empyema in adults is often followed by discharging sinuses and failure of the empyema to heal. I cannot remember a single instance in which an empyema in children has failed to heal. The period during which drainage takes place is often a long one. It may be necessary to re-operate for infected rib stumps. But I cannot remember a single instance in which the wound has eventually failed to heal, so that as a result of my experience I am rather inclined to the open operation as the one that allows you to explore and break up pockets and drain your multilocular empyema at a single sitting. It is not so tremendously long in most instances as to endanger the life of the child by the operative procedure, and my own experience with Dakin's solution has been very unpleasing, possibly due to my own lack of technique and possibly due to the fact that the Dakin's solution was not properly standardized; but these are two important factors which make the use of Dakin's solution successful or unsuccessful.

J. W. Ames, Denver: I am sure that Dr. Packard will agree that the successful management of empyema involves medical problems as well as surgical problems, and I believe that part of his success in lowering the mortality from 25 to 30 per cent among these children to practically nil was due to the realization early in his professional career that in pediatric surgery, co-operation of the surgeon and the internist brings about the best results. I might say that I conferred with Dr. Packard in some of his cases two or three times a day for six or eight weeks. We should remember, and it is hard to remember sometimes, that empyema is not a primary disease. It is superimposed upon attack of pneu-

monia, and the child's vital forces are reduced to a minimum, its strength is almost at the vanishing point when the operation is performed. All the more reason, therefore, to conserve what energy is left, and to prevent distention of the abdomen, which embarrasses the heart action, and the onset of acidosis by giving the child foods poor in fats. In a general way it is essential to observe those rules of hygiene that must obtain in larger measure in infants than in adults who have more reserve force. We have limited, in our own cases, those heart stimulants which are administered hypodermically. We secure as much rest for the child as possible, inducing sleep either by the administration of luminal or codeine. I believe we ought to accord diet, in therapy, the place in medicine it deserves. Frequently the surgeon will tell the nurse to give the child soft diet, and that includes white bread and starches of all kinds. The child's intestines are immediately inflated with gas, pushing the heart out of place. We are careful in our instructions not to induce an acidosis; we are careful to secure proper elimination, and I believe these measures add very largely to the better results that Dr. Packard has obtained. I know of no surgical infection of childhood which calls for the acumen and wisdom and judgment of medical attendants more insistently or more continuously than a severe case of empyema.

J. R. Espey, Trinidad: I haven't anything really to add except that having for many years been taught that we must not use any irrigation, and then at the time of the war changing the trend in that line and using Dakin's solution and attempting others, I have abandoned them, every one, not having felt that I got results from them. I have not been able to use a closed operation as it should be used for lack of the real skilled nursing which it takes. I have not seen the delayed or prolonged drainage from the operation with rib resection, and I have gotten back pretty much to where I was before the war except as to the time of operation. We remember that we had the impression before that, that when there was pus in the pleura we must get right to it, and I think we were in the habit of operating too soon, and the experience during the war developed that the cases that were operated immediately almost uniformly died. At one camp, the first thirty-eight cases died. They learned with the delay that their pneumonia practically recovered, so they waited until a more favorable time to operate. I have now gotten back to where we were before that experience, that I do the open operation with rib resection and drainage without irrigation of any kind. I want to cite a case that shows the wonderful neglect some children can stand in these cases. I had a case of a little Mexican six C 666_____hpIm who had an undoubted empyema and was ready for operation, but the parents were not willing for the operation to be done (and I lost out on the case), but between five and six weeks afterward I was called in. In the meantime, Christian Scientists and a chiropractor and a physician that did not believe in operations had been taking care of the case until at a glance you could see what was the matter with the child. Her chest just stuck out all around, but they were not ready for operation yet. It was in the evening, and I told them, as I told them before, that that child needed operation, and needs it worse now, and they thought maybe I could cure it without operation, and I told them I would abandon the case here and now. There was one girl in the family, a lot older, and she persuaded the parents to let

me take the child right to the hospital. We took it to the hospital, and I think if you could have measured the pus it would have been by barrels; but that child after the operation made the customary prompt recovery. It just had all the pus that one pleura could be made to hold in a child of that age, and once it was drained, why, recovery was rapid and prompt. I think Dr. Hartwell said that there is perhaps less liability to prolonged drainage. I have not had much experience in infants, but in childhood I think we are less liable to have long drainage than in adults.

Dr. Packard (closing): I agree with Dr. Hartwell and Dr. Espey and also with Dr. Woodbridge, that the most important point in the whole treatment of empyema is the time of operation. That will affect the death rate more than any other one thing. Second: I think that the type of operation, while it will not affect the death rate to any such extent as the time of operation, will affect it very materially, because we have none of these drawn-out cases that die of sepsis or toxic absorption. The duration of the closed cases was less than one-half that of the open cases, and consequently the cavity was shrunk down a great deal more quickly in the closed cases than the open. After a few days these patients pick up very remarkably and in a very short time are practically beyond the stage of the secondary complications that are so frequently the cause of death. I would like also to mention the end results: We had markedly less chest collapse and markedly better lung expansion after the closed operation than after the rib resection. There is often such a marked difference in the two sides after open operation. One other point is the skill required in the after treatment. Nearly all these cases were taken care of by the pupil nurses of the Children's Hospital. Very few patients have had special nurses, and with very few exceptions we could get along with the pupil nurses, many of them being in their first and second years.

THE TWO-SIDED MAN

Much I owe to the Lands that grew—
More to the Lives that fed—
But most to Allah Who gave me two
Separate sides to my head.

Much I reflect on the Good and the True
In the Faiths beneath the sun,
But most upon Allah Who gave me two
Sides to my head, not one.

Wesley's following, Calvin's flock,
White or yellow or bronze,
Shaman, Ju-ju or Angekok,
Minister, Mukamuk, Bonze—

Here is a health, my brothers, to you,
However your prayers are said,
And praise be Allah Who gave me two
Separate sides to my head.

I would go without shirt or shoe,
Friend, tobacco or bread,
Sooner than lose for a minute the two
Separate sides of my head.

—Rudyard Kipling.

GALL BLADDER VISUALIZATION BY ADMINISTRATION OF RADIO OPAQUE SUBSTANCES*

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DENVER, COLORADO

The diagnosis of gastrointestinal conditions, which was made possible by the use of the opaque meal, led various Roentgenologists to believe that an opaque substance might be safely introduced into the gall bladder to outline this organ and to diagnose gall bladder disease more accurately.

In the various tests made to determine liver function, it was found that certain dyes were excreted, almost entirely into the bile. This led Drs. E. A. Graham and W. H. Cole¹ of St. Louis to make various experiments on animals, using the intravenous injection of the different dyes to see if the gall bladder might be outlined. In their preliminary report, February, 1924, they gave the results of these experiments. The sodium salt of tetrachlorphenolphthalein was first used intravenously but a satisfactory gall bladder shadow was not obtained. Owing to the similarity of chemical structure, tetraiodophenolphthalein was next used and, while giving a satisfactory shadow, seemed too toxic to be used in man. The sodium salt of tetrabromphenolphthalein was then tried but did not always give a definite shadow. The calcium salt of tetrabromphenolphthalein, given intravenously, was found to give a definite and clear cut shadow in both experimental animals and man. The amount of the calcium salt necessary to cast a shadow had to be dissolved in a large amount of water and this large amount of fluid when injected intravenously gave very severe reactions at times. It was found that if the stomach was empty before injecting the dye, that the sodium salt of tetrabromphenolphthalein gave as clear shadows as the calcium salt and, being more soluble, the reactions were less severe when the smaller amount of fluid was injected.

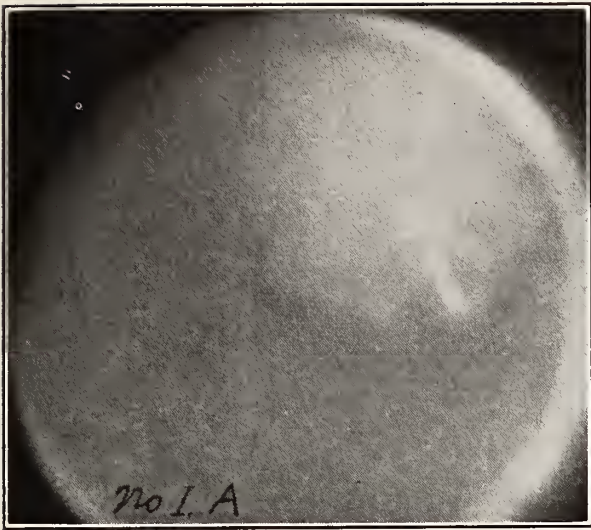
It is possible to visualize certain tissues of the body because the Roentgen-rays in passing through the body are absorbed unequally

by the different tissues. About three and one-half years ago, we conducted a series of experiments to determine what factors were necessary in visualizing a gall bladder. We used the fresh bile and gall bladders of cows. The filled gall bladder was immersed in water in a card board container, 15 cm. deep, this being about the diameter of an average person. Water will absorb x-rays about the same as the body tissues. The specific gravity of normal human bile according to Dr. E. C. Hill is 1.020. We found normal cow's bile to be the same. The normal gall bladder tissue of a cow is much denser than any pathological gall bladder of man that we have ever seen. We increased the specific gravity of the cow's bile up to 1.170 by the addition of sodium chloride. We took 68 negatives with different combinations, i. e., varying the specific gravity of the bile and using different penetrations, and arrived at the conclusions, (1) that an average sized gall bladder with a thickened wall can be visualized; (2) that a normal sized gall bladder with bile specific gravity 1.050 is more readily seen; (3) that a gall bladder with bile specific gravity 1.095 is quite distinctly seen; 4) that a gall bladder with bile specific gravity 1.170 could be seen nearly as clearly as bone.

Drs. Graham and Cole by administering tetraiodophenolphthalein in non-toxic doses were able to increase the specific gravity of the bile in living human beings, by means of the iodine content of the substance, giving the bile a greater density and thus visualizing it.

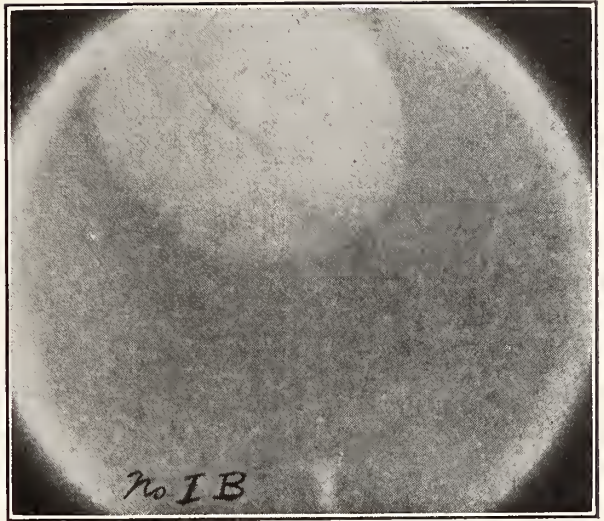
There have been a total of 11 substances reported to date that will give a visualized gall bladder, but to be of value, they must be non-toxic and not stain the tissues. Weight for weight, the bromine and iodine compounds are equally toxic, but a smaller amount of the tetraiodophenolphthalein will visualize the gall bladder because of the difference in chemical composition of the two compounds. The atomic weight of bromine is 80, of iodine, 127. Sodium tetrabromphe-

*Presented before the Denver City and County Medical Society, December 15, 1925.

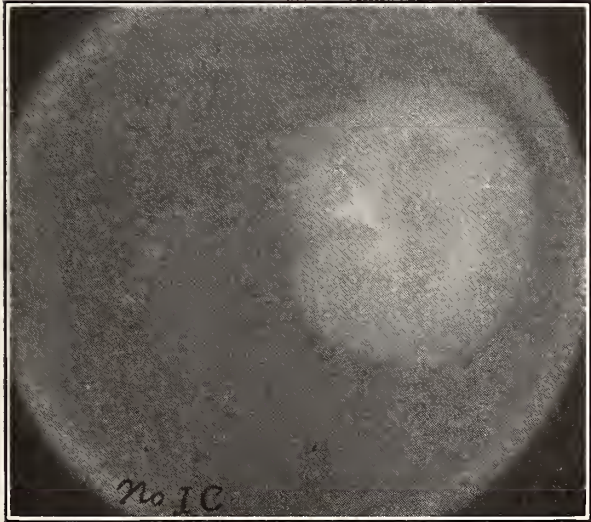


Negatives taken of a cow's bladder in a water phantom 15 cm. deep.

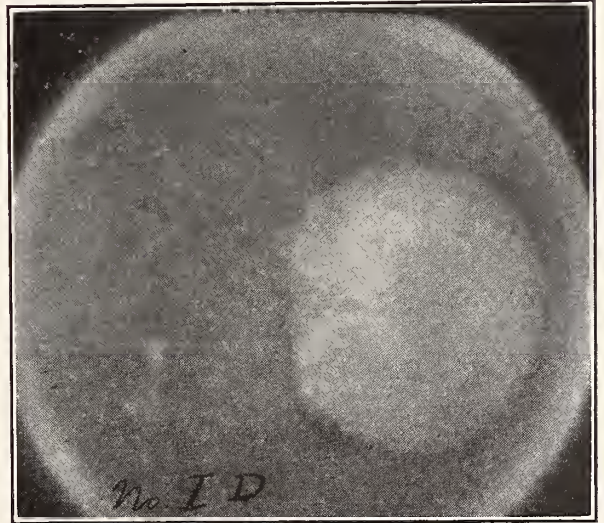
(a) Cow's gall bladder with thickened walls, and normal bile.



(b) Same with bile increased to specific gravity 1.050 by the addition of NaCl.



(c) Same with bile, specific gravity 1.095.



(d) Same with bile specific gravity 1.170.

nolphthalein contains 50 per cent by weight of bromin and sodium tetraiodophenolphthalein contains 61 per cent by weight of iodine. The sodium tetrabromphenolphthalein and the sodium tetraiodophenolphthalein have proven to be the most satisfactory substances for gall bladder visualization, but since the tetraiodophenolphthalein can now be obtained in a highly purified form and can be given in smaller doses, it has become the drug of choice for both intravenous and oral administration.

A dose of 0.2 gm. per kilogram of body weight of either tetrabromphenolphthalein or tetraiodophenolphthalein does not produce lesions in the liver or other parenchy-

matous organs. In a recent article, Ottenberg and Abramson² express the need for caution in the intravenous injection of tetrahalogensphenolphthaleins. The dose required to produce lesions of the liver in their experiments were from four to six times larger than the dose now used per kilogram of body weight for cholecystography in man.

On account of the alarming and disagreeable symptoms sometimes produced by the intravenous method of administering sodium tetraiodophenolphthalein, experiments were made to see if the oral administration of the salts would prove satisfactory. In January of this year a paper read by Whitaker, Miliken and Vogt³ in Boston contained a report

of their results in the oral administration of this drug. Drs. Menees and Robinson in February and Hickey in May, reported on this same subject. Good shadows of the gall bladder were reported by this method. Sabatini and Miliani⁴ in August of this year report their experiments with the oral administration of the bromides of soda and strontium and believe it gives less reaction than the other drugs used.

Stewart, Einhorn and Ryan⁵ administered the sodium salt of tetraiodophenolphthalein into the jejunum through the duodenal tube. Only 2 to 2.5 gms. of the dye were required to outline the gall bladder satisfactorily. This amount dissolved in 200 c.c. of freshly distilled water was slowly injected, usually in two doses. The tube was inserted the night before, the patient fluoroscoped the following morning to determine the exact position of the tip of the tube. As a rule, the gall bladder showed as well as with the intravenous injection, but the method was not advisable for routine gall bladder examinations as very alarming reactions often occurred.

Rectal injections of the solution have also been used and good shadows of the gall bladder were obtained when the patient was able to retain the fluid until the drug could be absorbed. Severe diarrhea often followed the rectal injections.

The final choice of administration lies between the intravenous and oral methods. The intravenous method is the more reliable and accurate as we can not always be sure that the salts will be absorbed by the oral method. The oral method however causes less inconvenience to the patient and is simpler for general routine work. If the gall bladder does not visualize, this method should be checked by the intravenous injection.

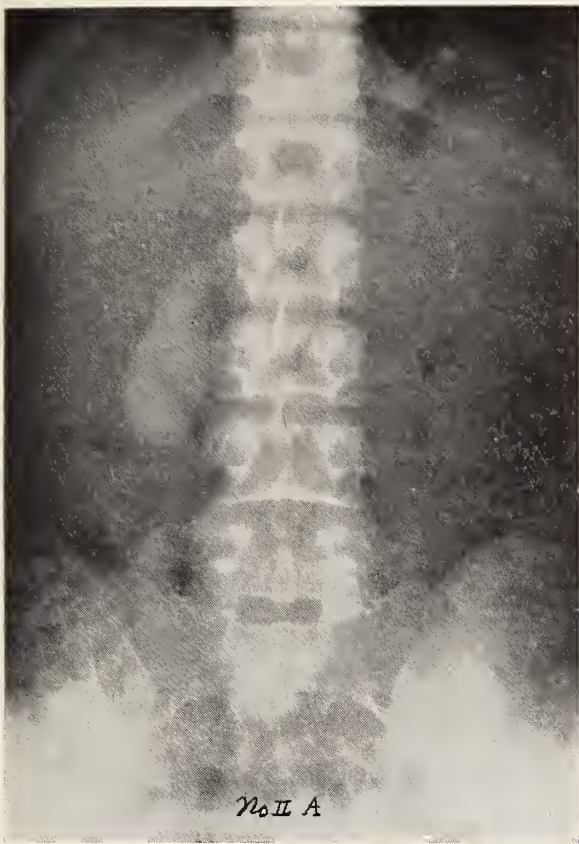
For the intravenous method, the patient is instructed to eat a light evening meal and to report at the office the next morning without any breakfast. The usual technic is as follows; 3 to 3.5 gms. of the sodium salt of tetraiodophenolphthalein (for persons weighing 130 lbs. or over) is dissolved in 28 c.c. of freshly distilled water. Filter and

sterilize in boiling water bath for 15 minutes. Dr. Paul J. Connor, in giving the intravenous injection adds enough normal salt solution to bring the amount to 60 c.c. before injecting. Less reaction is apt to occur where this further dilution is used. One-half of the solution is given and the remainder injected into the opposite arm one-half hour later. Care should be taken not to inject a small vein as a phlebitis may occur; care should be taken not to allow extravasation of the fluid into the tissues on account of the danger of tissue necrosis. The syringe should be disconnected from the needle and a free flow of blood established before injecting the dye. After injection of the dye, follow with a few c.c. of physiological salt solution to prevent any leakage from the vein or needle and also to prevent irritation of the vein from a too concentrated solution. The arm should be raised for a short time after the injections.

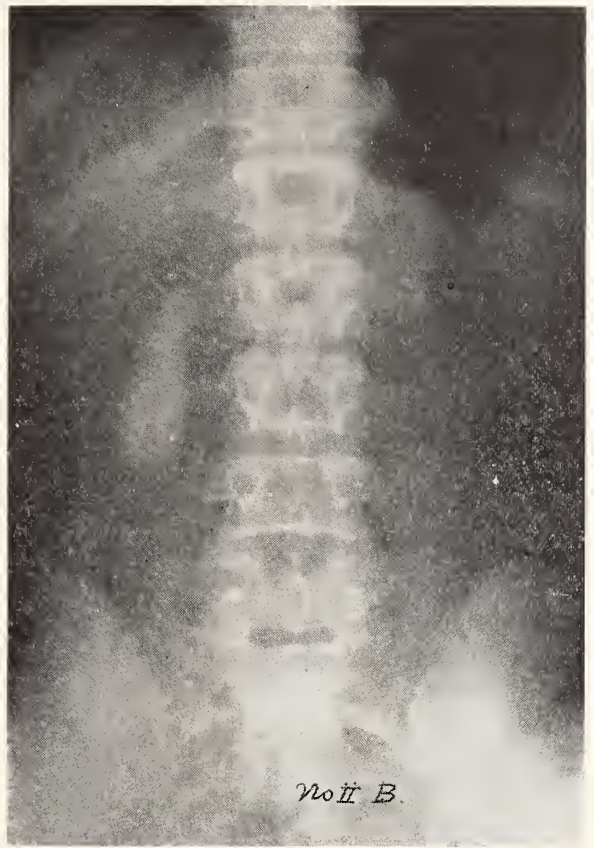
Take a negative 5 to 6 hours later and, if a shadow is obtained of the gall bladder, have the patient eat a regular meal, reporting for a further negative 2 hours later. Take another negative after breakfast the following morning and, if a shadow of the gall bladder is present, take another negative after the noon meal. A normal gall bladder will begin to cast a shadow from three and one-half to five hours after the injection, be reduced in size about one-half to two-thirds from one and one-half to three hours after the first full meal and should be gone after the second meal.

The patient may have some slight reaction as, flushing of the face, nausea, headache and slight dizziness which comes on usually at the time of administration, usually lasting but a few minutes. Adrenalin, min. V should be given at the slightest sign of reaction, as the reactions are more vasomotor in type than anaphylatic. Reactions with the sodium tetraiodophenolphthalein are usually of no consequence, providing a pure drug and a proper technic have been used and providing there were no contraindications to the use of the drug in the individual.

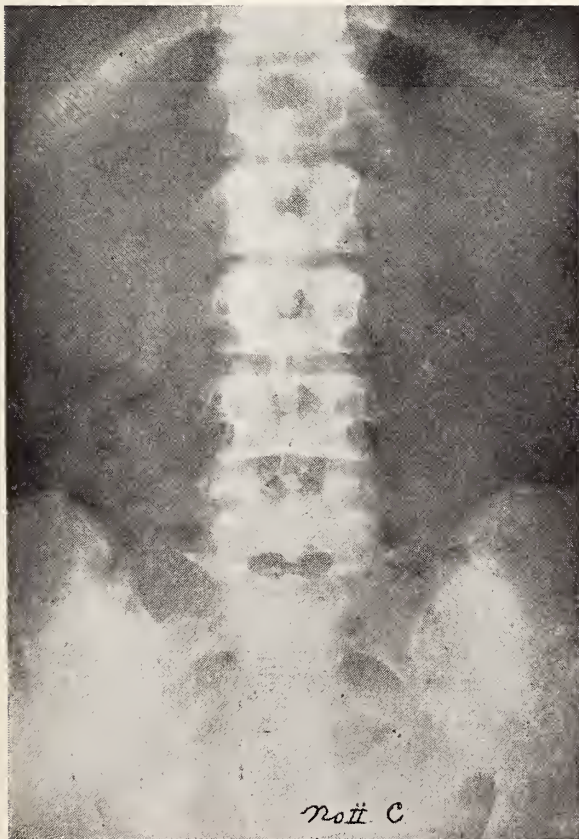
These contraindications as pointed out by Carman⁶, are, "Obstruction of the common



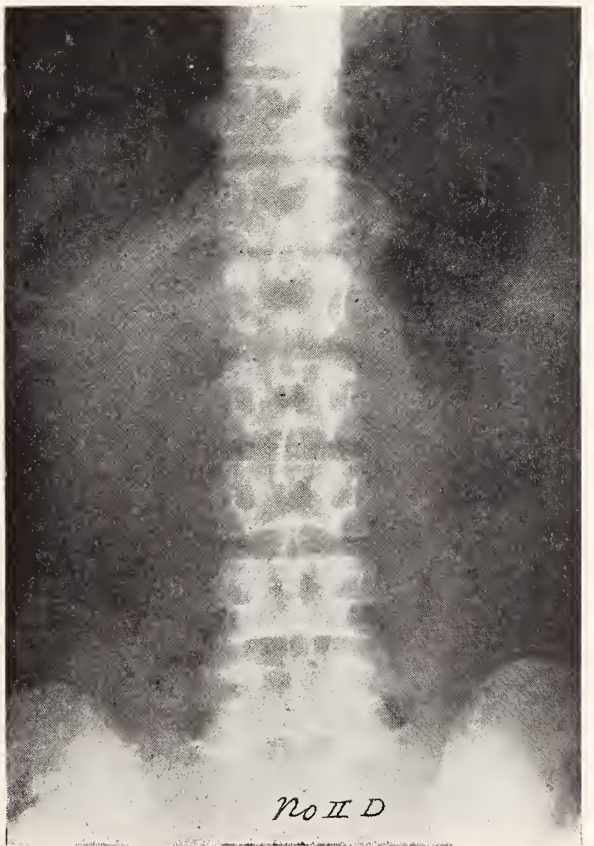
(a) Normal gall bladder, 4 hours after intravenous injection.



(b) Small gall bladder, 6 hours after injection, smaller and denser.



(c) Same gall bladder, 8 hours after injection and 1 hour after meal. Nearly $\frac{3}{4}$ empty.



(d) Taken 24 hours after injection. No trace of gall bladder shadow.

duct, extensive hepatic disease, marked diabetes, hyperthyroidism, arteriosclerosis, hypertension and cardiac disease, especially those attended with auricular fibrillation."

In our experience we have had no severe reactions by the intravenous method, occasionally a little nausea, flushing of the face, headache and slight dizziness, although we do not use the drug if any of the above conditions are present.

If the intravenous method is not advisable, the drug should be given orally. For this method, it is necessary to have a specially coated pill or capsule, as the drug is very irritating to the stomach and the hydrochloric acid of the gastric juice may precipitate the soluble salts of the pthaleins and form an insoluble salt. There are various methods by which the pills or capsules are coated. We have had good results with the Kerasol capsules supplied by James Picker, Inc., each capsule containing 5 grains of the sodium tetraiodophenolphthalein. One capsule for every 10 lbs. of weight in heavy persons and one for every 12 lbs. in thin persons is given, using a maximum of 20 capsules in heavy people.

The following instructions are given the patient: (1) Do not take a cathartic; (2) Eat a light evening meal, omitting fats; (3) Beginning at the evening meal take 2 capsules every 15 minutes, drinking plenty of water, until the required number are taken; (4) Do not break the capsules; (5) Report at the office the next day at noon without breakfast or lunch.

If a shadow of the gall bladder is seen after the first negative is taken, the patient is instructed to eat a full meal and to return for further negatives two hours later. Additional negatives are taken the following morning and afternoon to see if any trace of the shadow is left.

As stated by Carl Oakman,⁷ "Normally the dye is absorbed in the intestines, is carried by the portal circulation directly to the liver, is then excreted into the bile stream, finding its way to the gall bladder, whence it is evacuated during digestion. Any defects in this cycle may interfere with results."

Vomiting, diarrhea, poor quality of the drug and pathological conditions of the intestines may all be factors interfering with the absorption of the drug and inaccuracy of results. At times some of the capsules will pass intact into the colon thus allowing but a small amount of the drug to be absorbed, necessitating a checking with the intravenous method to be sure of the diagnosis.

We use the following technic: Radiator type tube, 25-inch distance, 30 ma. two and one-half seconds exposure and a Bucky Diaphragm. Without a Bucky, use a small cone, 100 ma. and one-fifth second exposure, if you have a tube that will stand it. Vary the voltage with the thickness of the individual, using a four-inch gap for an average person, three and one-half for thin persons and five to five and one-half for heavy persons.

The function of the gall bladder is to receive the bile, to concentrate and store it during the fasting period and to discharge the bile periodically into the duodenum during the process of digestion. According to Bruns, no bile appears in the duodenum as long as the stomach is empty. The gall bladder does not have the power to empty itself by its own muscular contraction on account of the thinness of its muscular coat.

As stated by Graham, Cole and Copher,⁸ "In order that a gall bladder may be visualized, it is necessary, (1) that the liver excrete the dye; (2) that the hepatic, cystic and common ducts be patent; (3) that the gall bladder has the ability to fill and empty itself; (4) that the latter once filled, be of a size to contain a sufficient amount of the dye to give rise to a shadow; (5) that the gall bladder be able to concentrate the dye. Thus in extreme hepatitis, occlusion of the hepatic and cystic ducts, most generally in an obstructed common duct where the gall bladder has become overfilled and so cannot take out the fluid in the bile, a gall bladder filled with stones, inspissated bile or other contents which it cannot discharge and a contracted gall bladder would not give a visualized gall bladder. Mottling of the gall bladder shadow probably indicates the presence of numerous soft stones." These stones

are not generally visualized by any other method.

Sherwood Moore^o states, "If no shadow has been obtained, providing the technic has been correct, there is probably a pathological condition in the biliary tract; if the shadow is present but faint, the hepatic, cystic and probably the common ducts are patent and the gall bladder is diseased. If the gall bladder shadow is present, either faint or intensive but of uniform size throughout the series taken, there is present disease of the organ affecting the wall. Total absence of a shadow is a reliable indication of its disease and at operation, even though the gall bladder appears normal, is often not only diseased but contains stones." He also states, "That with the older methods over a period of 8 years, that the diagnosis of gall bladder disease when checked by operation have been but 37.4 per cent correct and that with cholecystography has been 92.5 per cent correct."

Carman states, "That the shadow of the gall bladder is oval or pyriform with an even contour and should be homogeneous. It is larger at earlier than at succeeding hours. This variation in size is very good evidence of normal distensibility of the gall bladder. Abnormal responses include failure of the gall bladder to fill with the dye, scanty filling as shown by persistent faintness of the shadow, partial filling, deformity of contour and mottling or central defects. Of 39 diseased gall bladders, 34 had been operated, in which 19 of 25 cases, in which stones were present, there was no shadow of the dye at any time; in two, the stones produced mottling of the shadow; in one, there was a shadow of the dye at the eighth hour only; in one, a constant faint shadow within which was the shadow of a stone, and in two, the responses were normal. Of 14 cases of cholecystitis without stones, there was a shadow of the dye in eight, a shadow visible only at the fifth and eighth hours in two, and a shadow at the 24-hour only, in one. In three cases the responses were normal."

Case Reports

Mr. R. W., age 43. Complaining of distress in right upper quadrant coming on when stomach is empty, relieved by food and soda. Slight nausea,

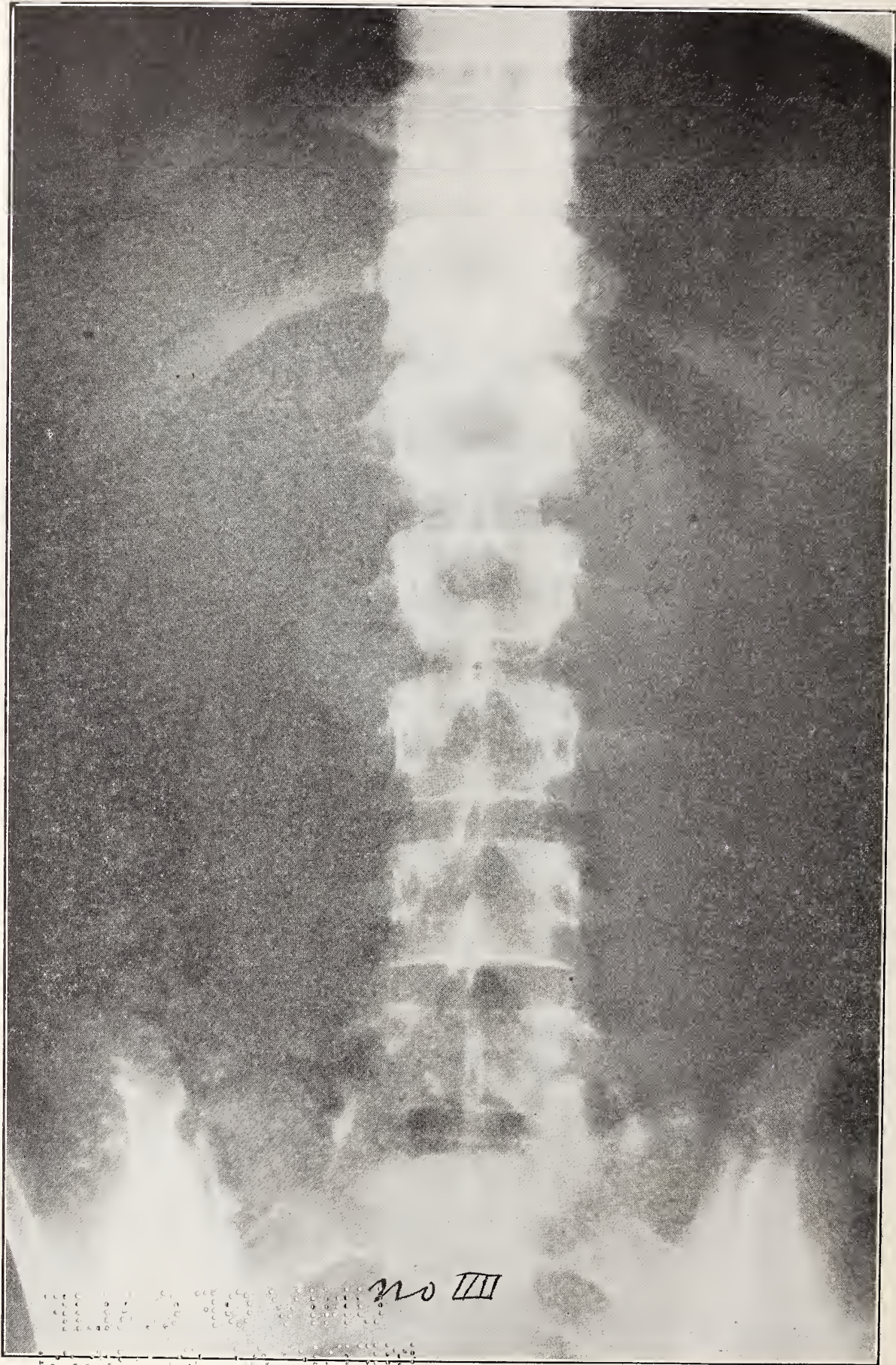
no vomiting, no jaundice, large amount of flatulence. Is now and has been on Sippy diet for some time. Patient was so sure that he had an ulcer that he thought a negative of gall bladder region unnecessary. An increased area of density was found in the gall bladder region with an area of greater density due to a stone. We urged him to take the intravenous injection of sodium tetraiodophenolphthalein so as to determine the amount of function present of the gall bladder. No more definite shadow was obtained after injection of the dye except that a large stone was more plainly outlined.

Case 2. Mr. L. S., age 50. Referred by Drs. Dunklee and Mumey. Patient has been having periodical attacks of sharp pain in the right upper quadrant coming on suddenly, lasting about an hour and leaving suddenly; the soreness persists for some time afterward. Has had three attacks, jaundiced after the last two; gas, nausea and vomiting during the attacks. Sodium tetraiodophenolphthalein was given intravenously and negatives taken 6, seven and one-half and 10 hours later, the gall bladder not being visualized at any time. Diagnosis: Chronic cholecystitis, with or without stones; none were visualized. At operation the surgeon reports that the walls of the gall bladder are thin, easily compressible and no stones could be felt. Trocar was inserted and bile appeared to be normal. Upon removing trocar, the end was covered with a mushy substance resembling soft stones. Upon opening the gall bladder quite a little of the mushy substance was found to be present and no doubt was the cause of his periodical attacks of pain and jaundice.

Conclusion

Our own impression of the method by which the gall bladder empties, is, that during active peristalsis, the antrum of the stomach becomes much distended, comes into direct contact with the gall bladder, causing it to empty by compression. For years, a long, narrow antrum which did not bulge during active peristalsis, has been recognized as fairly characteristic of gall bladder disease. It is a well known fact that the normal gall bladder lies in contact with the duodenum and that vigorous peristalsis causes the antrum of the stomach to bulge against the gall bladder. Deep inspiration may be an aid in the emptying of the gall bladder if it occurs at the height of the peristaltic wave from the antrum.

We believe the sodium tetraiodophenolphthalein is the best preparation to use as it gives better negatives with less quantity of the drug and less toxicity. The intravenous method, unless there are distinct contraindications to its use is the method of choice as it is the most accurate. The oral method is more simple of administration and is easier for routine office examinations, but should



Negative shadow probably due to stone in cystic duct



Illustrating the course the sodium tetra iodophenolphthalein takes from the stomach and bowels into the portal circulation and the liver where it is excreted into the bile and then enter the gall bladder.

be checked by the intravenous method, if satisfactory gall bladder shadows are not obtained. If no shadow is obtained by the intravenous method, providing the technic has been correct, a marked disease of the gall bladder is present, such as advanced cholecystitis, occlusion of the cystic duct from any cause, atrophy or contraction of the gall bladder from stones or disease. Faint but persistent shadows of the gall bladder throughout the series indicate a gall bladder over distended and unable to absorb the fluid and to concentrate the dye. This type of gall bladder would be unable to empty and an organ that cannot empty is potentially infected. We believe that a shadow persisting after the second regular meal has been given, indicates disease. We do not believe that enough importance is attached to this delay in emptying as the gall bladder should empty during the process of digestion. A mottling of the gall bladder shadow indicates stones.

The visualization of the gall bladder by the giving of radio opaque substances is one of the greatest aids in diagnosis that has been made in recent years.

Credit is due Drs. Dunklee and Mumey for the illustration.

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PSYCHOPATHOLOGY- ANXIETY

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DENVER, COLORADO

Anxiety is an emotional state directed to some harm (real or imaginary) within the body. It is usually accompanied by bodily sensations. It differs from apprehension in that the latter is a fear of harm from without the body. There are very few people who do not show it at some time or another. Too little anxiety may be as great an indication of psychopathology as too much of it. Many people develop tolerance for their anxiety and are thus able to do their work efficiently. It may be present for no apparent reason or it may occur only under serious stress. The old and young are affected but the first half of life seems predisposed. Men as well as women may be affected. It may be a chronic state or may come only in rather sudden attacks. The attacks may come by day or night but the majority of them occur at night. Attacks of anxiety are often confused with heart attacks, especially angina pectoris. A careful history taken by a physician who knows the fundamental clinical nature of angina pectoris will usually enable a correct differentiation to be made.

A woman, 36, came to a celebrated physician because, on exertion, she had attacks referred to the precordium. She had with her a nurse and her physician and would not allow them from her for a minute. The nature of the precordial attacks was never definitely established as pain, but were referred to as unbearable. She would be more likely to have them in crossing a high bridge than in walking on the ground and when an attack came on *she was able to walk home* before it ended. There had grown to be a definite misunderstanding between herself and her husband about certain intimate matters and the attacks had a definite relation to those differences of opinion.

Anxiety is not uncommon in hyperthyroidism and especially in the exophthalmic type. In exophthalmic goitre profuse perspiration, vomiting, constipation alternation with diarrhoea, tremor, vasomotor phenomena, and palpitation are well known. These symptoms have been known likewise to occur in patients without hyperthyroidism and subject to anxiety of a severe grade. Fear of death is often present or a sense of suffocation, or of impending disaster. In such patients the blood pressure may be slightly above normal and because of the excessive muscular tension it is not uncommon for aches and pains to develop in the muscles and joints. Only rarely is the anxiety so chronic or of such a degree that hospitalization is necessary for it per se. From the nature of anxiety the therapeutic approach presupposes a most thorough examination of the patient in order to be sure that the reactions are not founded on some organic disease process.

One often sees some anxiety associated with mental depression. Persons liable to anxiety are restless and move from place to place undoubtedly in quest for peace and rest. Suicide is resorted to at times for relief from its distressing effects, though this rarely occurs. Anxiety may be a complication with any internal medical disease and according to its degree, affects seriously the recoverability of the patient, for it causes an enormous amount of energy to be diffused and reduces very much the normal resistance of a patient.

IN THE LAND OF PYRAMIDS

They call him Johnny—Johnny Smith.
He does not like to clean his teeth.
He hates the toothbrush—tooth-paste too.
Hear, Johnny, what I have for you!
In Egypt, where there flows the Nile,
There lived a sacred crocodile,
Old hundred years. His dreadful jaws
Are full of teeth as sharp as saws,
And what he catches on the shore
Is lost. You see it never more.
But after meals he likes to rest,
And in the sun to bask his crest;
And as he sleeps with open mouth
There come the birds from East and South,
And in his jaws they pick and bite
Until his teeth are clean and white.
Dear Johnny! See, that even there,
The crocodiles know dental care.
They do not make so much ado
About the toothbrush. **Why Should You?**

—Dr. Karel Driml in North Carolina Department of Health Bulletin.

CHLORIDS IN INTESTINAL TOXEMIA

In experiments on forty-eight dogs with obstruction of the jejunum, to determine the most desirable method of administration of chlorids as a protective measure against the toxemia of intestinal obstruction, nine dogs were given no treatment of any kind. All died in from two to eight days after the primary operation.

A lateral anastomosis to relieve the obstruction was done in eight animals after the onset of the toxemia, and all died in from one to nine days after the anastomosis was done.

One animal was given 1 or 2 per cent sodium chlorid subcutaneously daily from the onset of the obstruction. This animal lived thirty days, finally succumbing to exhaustion. There was no toxemia at any time.

Six dogs were given distilled water subcutaneously, and all died in from two to five days.

Two of five dogs given 10 per cent sodium chlorid intravenously, and one of three given 25 per cent, intravenously were relieved of the toxemia and recovered after a lateral anastomosis.

Five of seven dogs given 2 per cent sodium chlorid subcutaneously recovered after the obstruction was relieved. Two died from infection.

Of ten dogs treated intravenously and subcutaneously with a salt mixture, eight recovered.

The data presented here emphasizes again the value of chlorids in the treatment of the toxemia of intestinal obstruction.—Haden and Orr, Archives of Surgery.

THE PLAY OF LIFE

Scene: The office of the County Health Officer.

Time: Last of the month.

Actors: A busy Doctor, the County Health Officer, and fair lady assistant.

Enters busy general practitioner leaving on the desk of the fair young lady assistant his reports of births of the month.

Everybody busy, work going fine.

The fair young lady to County Health Officer: "Something is wrong on this report."

Cranky old Health Officer: "What's the matter with you now?"

Fair young lady: "Oh, nothing, Doctor."

"Yes there is; what is the trouble?"

Fair assistant: "Oh, it's nothing. Dr. Crane reported a baby without a mother, and it's sometimes a baby without a father, but I never have seen one reported without a mother."

Old crank of a Health Officer examines report and finds the reporting doctor has not filled in blank on the right hand side of report, giving name of mother together with her family history.

Old crank of Health Officer: "Go and have Dr. Crane find a mother for the child, or get Mrs. Cox to adopt it into some family in the State of Wyoming; it surely never came from Nebraska."

Deaths Due to Syphilis in France

Twenty thousand infant deaths, 40,000 abortions and 80,000 deaths among adults is the toll exacted by syphilis in France each year, according to the Minister of Labor, Hygiene and Social Welfare as reported in a recent number of "The Lancet" (London). The government is undertaking a campaign of public enlightenment and is instituting preventive measures for which 4,000,000 francs are appropriated annually. The Minister states that progress is taking place and points to the fact that syphilis is no longer regarded as a disease to be hushed up.

SYSTOLE

A man cannot believe in others until he believes in himself.—Bernard Shaw.

Compare your griefs with other men's and they will seem less.—Spanish Proverb.

Learning for learning's sake is perhaps as coarse as eating for eating's sake.—Epigrams of Remy De Gourmont.

Man can no more see the world than a fish can see the river bank.—Epigrams of Remy De Gourmont.

Democracy is based on the doctrine that the adult intelligence must be allowed the greatest freedom of personal choice compatible with the freedom of other reasonable adults to make their own choices.—Writers' Monthly.

Let everyone sweep away the snow from his own door and not meddle with the hoar frost on his neighbor's tiles. Chinese Proverb.

If what we see is doubtful, how can we believe what is spoken behind the back?—Chinese Proverb.

A brilliant mind, a skillful hand has nothing to do with the health or duration of life of an individual, which is determined by his power to combat against disease and age.—Homer Lee.

By labor of thinking, man has confidence in himself to master the sciences, also to be good.—A. B. Jamison.

When the intellectual history of this time comes to be written, nothing, I think, will stand out more strikingly than the empty gulf in quality between the superb and richly fruitful scientific investigations that are going on, and the general thought of other educated sections of the community.—H. G. Wells.

DIASTOLE

Small Boy: Me and Jim Hill had a fight today.

Father: I know you did, his father has just been to see me about it.

S. B.: Gee, hope you made out as well as I did.

A former editor writes: "In the January issue of the journal reference was made to a former editor's 'oversight' of many thankless details. The word has a double meaning. Will the present editor please be explicit?"

Answer: Only a former editor knows which "oversight" is most probable.

A patient writes: "My general nervous condition is greatly improved, but I have an idea I have a locus of infection somewhere in my alimentary tract. At least I feel pretty sure I have a locus somewhere."

A recalcitrant patient was leaving the hospital against a Denver doctor's order. The doctor remarked "You had better have the priest see him before he leaves the hospital." The patient's wife answered "Oh yes, doctor, I had two priests see him before I sent him to you.—W. G.

My dear Doctor: The other day I received a letter from a friend of mine who learned of the following from a medical authority:

"Relative to your personal condition, stuttering is, as you will recall, in male subject, a nervous condition from a tube leading from the bladder to the penis, called the uritha (?). The symptoms usually get to the state where it takes a long time to drain the bladder. This tube has a tight place in it, causing irritation. Go to a local doctor, have him pass **sounds** through the penis into this tube, each time using a larger one, to increase the size of the tube, and your stuttering will be all over, besides that you will improve in every way."

NEWS NOTES

Dr. Harry S. Finney has just returned from a clinical trip in the Southwest. He reports that he spent most of his time in San Antonio, Texas.

Dr. S. D. Van Meter recently read a paper before the American Association for the Study of Goitre at Louisville, Kentucky. His subject was Atypical Goitre.

Dr. Fosdick Jones recently left Denver to attend a meeting of The International Congress of Surgeons to be held at Rome. He expects to visit many of the historic places of the Mediterranean coast line and return to Denver about May 1st.

Dr. Leonhard Koeppe of Halle, Germany, conducted a very interesting course of study in Denver on the subjects of the Slit Lip and the Corneal Microscope, subjects of which he is world authority. The following ophthalmologists were privileged to take the course: Dr. E. R. Neeper, Colorado Springs; Dr. Edward Jackson, Dr. William C. Finnoff, Dr. D. A. Strickler, Dr. William H. Crisp, Dr. E. E. McKeown, Dr. D. H. O'Rourke, Dr. William T. Brinton.

Dr. and Mrs. T. E. Beyer, Dr. and Mrs. W. H. Halley and Dr. and Mrs. C. F. Kemper recently left Denver for a trip to Panama. They expect to visit New Orleans, Havana and the leading cities of the Panamanian Republic and return to Denver about the middle of March.

The Northwestern Medical Society, which includes all the counties in the Big Horn Basin, an area larger than the state of Connecticut, held its meeting in Cody, February 4, and the report of this meeting will be given in the next issue.

Dr. and Mrs. J. H. Bradfield of Sheridan have returned from a two months' vacation. They made an extensive tour which took in Texas, Arizona, California, Oregon and Washington.

Dr. W. A. Steffen of Sheridan has returned to resume his practice. He spent some time visiting Eastern clinics.

Dr. J. E. Carr, recently from Texas, has located in Acme, Wyo., and will look after the interests of the coal miners. We hope that Dr. and Mrs. Carr will find Wyoming the land of promise and fulfillment.

Doctor, Mrs. V. J. Keating and family returned from a visit in Chicago and other eastern points. The doctor's health is considerably better and he has again taken up his practice.

An event of special interest took place February 8th, when two pair of classmates met in consultation and operation, Dr. F. E. Wallace, of Pueblo, and Dr. C. F. Harrison, of Syracuse, Kansas, graduates from Rush Medical College, Chicago, in 1896, and Drs. R. C. Robe and J. J. Pattee, of Pueblo, graduates from the same college in 1895. A patient of Dr. Harrison's was the particular magnet that drew them together.

On February 1st, Dr. F. E. Wallace, of Pueblo, received a wire that his son James H. Wallace had an emergency operation for appendicitis. Operation was performed by Dr. John Homans at Peter Bent Brigham Hospital. Late word indicated that James is making a good recovery. He is a second year man in Harvard Medical School.

Dr. Clarence B. Ingraham left last week for Hartford, Conn., to which he was called by the illness and death of his sister, Mrs. James W. Gilson.

Mr. and Mrs. Leonard Freeman will go abroad this month.

Dr. and Mrs. Frank P. Gengenbach left today for Hot Springs, Ark. They will be at Hotel Arlington and expect to be absent from Denver for a month.

Dr. and Mrs. Cuthbert Powell and their daughter, Mary Virginia, will leave soon for California. They will spend several months in their cottage at Carmel-by-the-Sea, near Del Monte.

Dr. Agnes B. Harrison of Seattle was a weekend guest of Dr. Laura L. Liebhardt at Rose Acre.

Dr. and Mrs. J. E. Kinney will leave soon for Hot Springs and will be in Dallas, Tex., for a part of the early spring. They plan to return in May.

ROSS WILLIAM MORRISH

Ross William Morrish was born January 7, 1889, in Kansas. His parents moved to Fort Collins, Colorado, when he was the age of 5 years. He received his academic schooling in Fort Collins. He was graduated in medicine from the University of Colorado, Class of 1914. Licensed in Colorado in 1914. Spent two years as interne at the County Hospital, Denver, after which he returned to Fort Collins where he practiced medicine till his last sickness.

He was a member of the Larimer County Medical Society, having been its secretary for a number of years, and at the time of his death he was vice president of the society. He was also a member of the Colorado State Medical Society and a fellow of the American Medical Association. He was a member of the Masonic order and the local Kiwanis Club.

He took suddenly sick the morning of January 9, 1926, and died of pneumonia January 14, 1926.

MEDICAL SOCIETIES

OTERO COUNTY

The Otero County Medical Society met at the Harvey House in La Junta, Jan. 14, 1926, for luncheon. Following the luncheon, the annual election of officers was held. Dr. R. S. Johnston of La Junta was selected as president, Dr. C. E. Morse of La Junta as vice-president, Dr. G. A. Ashbaugh of Rocky Ford as secretary and treasurer, and Dr. G. L. Kerley of La Junta was nominated as delegate to the next state convention.

Following a discussion on contagious diseases, it was suggested that Dick's Scarlet Fever Streptococcus Toxin for immunizing school children at present not to be recommended but that all school children should take Toxin Antitoxin and be vaccinated against smallpox.

P. S. Mrs. B. B. Blotz, M.D. (Alaska Watson), died Sunday morning, January 24, in St. Mary's Hospital at Pueblo. She was a graduate from Denver Gross Medical College, 1906.

G. A. ASHBAUGH, M.D., Secretary.

MORGAN COUNTY

On January 7th a special meeting was called by Dr. F. W. Lockwood, which was held in his office. The purpose of the meeting was to reorganize and elect officers.

The following officers were elected:

F. W. Lockwood, President.

C. F. Eakins, Vice President. (Brush.)

Harry A. Johnson, Secretary.

Censors:

A. F. Williams, one year.

A. E. Dodson, two years. (Akron.)

A. C. Lusby, three years. (Brush.)

E. E. Evans was elected delegate to the state meeting; A. E. Dodson as alternate.

On January 16th a banquet was held at the Busy Bee Cafe in honor of President Boyd, President-elect Curfman, Secretary Stephenson and C. F. Kemper, editor of Colorado Medicine. All the members of the Morgan County Society were invited to attend. Drs. Williams, Lockwood and Johnson were the hosts. After the banquet a program was put on by the visitors in Dr. Williams' office. This was greatly enjoyed by all present. Dr. Kemper gave an excellent paper on the more common chronic diseases of the abdomen; Dr. Stephenson showed x-ray pictures of the more common pathologic conditions in the abdomen; Dr. Boyd gave a talk urging the members of the county society to develop the scientific spirit in their work; Dr. Curfman read a paper on the "Function of the County Society." It was a meeting that will be long remembered by the members present.

The Morgan County Society will hold regular meetings on the second Monday of every month. Next meeting is February 8th.

HARRY A. JOHNSON, Secretary.

SHERIDAN COUNTY, WYO.

The Sheridan County Medical Society held its regular monthly meeting at the office of Dr. R. E. Crane, February 1, 1926.

The applications of Dr. Wm. F. Schunk and Dr. J. G. Stewart for membership in the society were unanimously accepted.

The society has for the past year carried on a campaign for administration of iodine systematically in the schools of Sheridan. Goitre is very widespread in this region.

A joint meeting of Medical Society, Sheridan School Board and Lions' Club will be held this month to discuss thoroughly the goitre question in an endeavor to convince the school board of the merits of goitre prophylaxis.

Dr. W. A. Steffen and Dr. T. E. Marshall were appointed to act with Dr. E. R. Schunk as an advisory committee to the Hospital Board for 1926.

The society went on record as in favor of the purchase of a standard metabolism outfit for the Sheridan Memorial Hospital.

The Dochez immunizing dose for Scarlet Fever prophylaxis was reported as very effective in exposed cases and is being used rather extensively in the prevailing epidemic.

Dr. and Mrs. R. E. Crane entertained with a Dutch lunch following the meeting.

DR. R. E. CRANE, Secretary.

GARFIELD COUNTY

I wish to report the meeting of the Garfield County Medical Society held in Glenwood Springs, Thursday night, January 26.

There was present Drs. L. G. Clark and R. B. Porter of Glenwood, A. H. Hepler of Newcastle, F. W. E. Henkel and O. F. Clagett of Rifle. The meeting was called by Dr. Clark for the purpose of electing officers for the ensuing year. Dr. Clark presided. The following officers were elected: Dr. Henkel, president; Dr. Clark, vice-president; Dr. Clagett, secretary-treasurer; Dr. Porter, delegate to state meeting and Helper alternate; censors, Drs. Crook, Helper and Clagett. Any notices from your office to the secretary of this society, please send to me.

O. F. CLAGETT, Secretary.

LAS ANIMAS

Dr. Alfred Freudenthal, President, Trinidad; Dr. D. G. Thompson, Vice-President, Trinidad; Dr. W. L. Newburn, Trinidad, Secretary.

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Dr. W. E. Buck, Pueblo, President; Dr. J. F. Snedec, Secretary-Treasurer, Pueblo.

MESA COUNTY

Dr. C. W. Reed, President, Grand Junction; Dr. E. H. Peterson, Secretary, Grand Junction.

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THE COLORADO SOCIETY OF CLINICAL PATHOLOGISTS

The regular quarterly meeting of The Colorado Society of Clinical Pathologists was held at The Jewish Consumptive Relief Society Sanatorium, January 16, 1926.

Dr. Bronfin acted as host to the society at a sumptuous dinner served in the staff dining room, after which the society adjourned to the auditorium in the medical building for the literary program.

Dr. Burdick gave a short report of what The American Society of Clinical Pathologists hoped to accomplish at the annual meeting at Dallas in April.

Dr. Carl Maynard read a very excellent paper on "Non-Standardized Laboratory Methods," and Dr. Hillkowitz presented some interesting gross and microscopical specimens of sarcoma of the medistinum.

The society adjourned to meet in Pueblo, May 15th, instead of April, so that the state meeting would not interfere with the national meeting in Dallas in April.

LOUISA T. BLACK, Secy.-Treas.

COLORADO GENERAL HOSPITAL

It is to be hoped that the readers have followed the growth of this institution as evidenced by the increase in the attendance from month to month. Nothing startling was anticipated by those in charge on opening the Hospital, but they did wish for a steady increase, and this has transpired. January has been one of the busiest months thus far, as can be seen from the figures given out by the Superintendent's Office.

Patients in hospital January 1, 1926.....	81
Patients admitted during the month.....	137
(This includes new born).....	19
Patients discharged during January.....	119
Patients dying in the hospital.....	8
Patients in the hospital February 1.....	91
Average number of hospital patients daily.....	88.6
Number of Counties represented.....	28
Men admitted.....	37
Women admitted.....	66
Children admitted.....	34

There are in all eleven services represented, and Obstetrics is quite prominent. It will be noted above that nineteen births occurred in January. This service has made marked strides in the last few months.

One criterion of a high standard hospital is in the percentage of autopsies that they obtain. Last month five autopsies were obtained from a total of eight deaths. There is no question but that much can be learned at a well conducted autopsy, and that the more we see, the better diagnosticians we become. This institution hopes to reach the goal of 100 per cent autopsies, for the antagonism which we have met in the past on the part of the relatives and friends is disappearing as they come to understand that the knowledge that we gain may also be of great value to them.

Another matter of which each physician in the state will notice are the clinics to be given at this institution during the last part of March. Full details will be given out later. Other activities in close connection with the Hospital show a parallel growth as already given. Especially true is this of the Out-patient's Department, with the Medical and Ear, Nose and Throat Clinics particularly heavy in attendance due to seasonal complaints.

E. R. Mugrage.

COLORADO PSYCHOPATHIC HOSPITAL

The following report given out by the office of the Director of this institution is quite similar to those of recent months. Contrary to the impression which often seems to prevail, the patients admitted to this Hospital seldom stay any considerable period of time; often only long enough for diagnostic purposes, and then are discharged to their home physician for treatment, or are cared for in the Out-patients' Department. As a result there is a quick turnover of patients and consequently the ability to care for many more.

Patients in hospital January 1, 1926.....	39
Patients admitted during the month.....	54
Patients discharged during the month.....	38
Patients in the hospital February 1st.....	55
Men.....20; women.....	35
Number of Counties represented.....	17

During the month there have been no deaths, but as it is with the Colorado General Hospital, the staff of this institution makes definite efforts to obtain autopsies on all patients dying in the hospital, and it is only seldom that consent is not given by the relatives.

In the Out-patients' Department there has been the average attendance as has been reported in recent months. Other activities in connection with the courts, outside of Denver as well as the local ones are coming up at times. All combined helping to make this a well rounded institution.

E. R. Mugrage.

DENVER CLINICAL AND PATHOLOGICAL SOCIETY

Laennec! Louis! Names to thrill the student of diseases of the chest! Names to thrill compatriot Frenchmen! Indeed, names to thrill medical men everywhere!

Tuesday evening, February ninth, one hundred doctors, members and guests of the Denver Clinical and Pathological Society gathered at the University Club at dinner in commemoration of the one hundredth anniversary of the death of René Théophile Hyacinthe Laënnec.

Students of tuberculosis dominated the proceedings. The chief medical officers of the various sanatoria in and around Denver were present: Colonel Paul Hutton, Colonel E. H. Bruns, and Major Thearle of the great United States Hospital east of the city, Dr. G. Walter Holden of the Agnes Memorial Sanatorium, Dr. H. J. Corper and Dr. Felix Baum of the National Jewish Hospital, Dr. I. D. Bronfin of the Jewish Consumptives' Relief Society, Dr. McLeod George of the Bethesda Sanatorium, Dr. Charles A. Bundsen of the Swedish Saanatorium and Dr. Lorenz W. Frank of the Lutheran Sanatorium. From out-of-town came Dr. Alexius Forster of the Cragmor Sanatorium, Dr. Clinton E. Harris and Dr. E. D. Downing of the Woodmen Sanatorium and others from Colorado Springs, Pueblo, Salida, Boulder, Fort Morgan, Sterling and Cheyenne. A notable gathering!

Dr. Gerald B. Webb, who delivered the principal address, sat at the right hand of Dr. J. N. Hall, the president of the society. Seated with them were Dr. G. A. Boyd and Dr. George H. Curfman, respectively president and president-elect of the Colorado State Medical Association, Dr. Maurice H. Rees, Dean of the Medical Department of the University of Colorado, Colonel Paul Hutton, Dr. Walter Jayne and the other officers of the Clinical and Pathological Society.

The program, specially printed for the occasion, displayed on the cover a cut of Laennec from the well-known portrait by Ambroise Tardieu. On the first page of the insert was a reproduction of the title page of the first American edition of Laennec's famous work, *l'Auscultation Médiate*. The tops of the two inside pages were decorated with small pictures of Laennec's stethoscope, reproduced from a cut in a brochure entitled "Introduction et premier chapitre de *Traité inedit d'Anatomie pathologique de Laennec*", edited by V. Cornil and published in Paris in 1884.

The menu, appropriately enough in French was placed on the left and below it six quotations, all tributes to Laennec and his work. The first two by William Stokes, 1825, and John Forbes, 1827, contemporaries and the latter Laennec's translator; next, a great Englishman, Thomas Addison, 1855, and a great American, Austin Flint, 1876, of the generation immediately following; and finally, Sir Clifford Allbutt, probably the most erudite

member of the medical profession of modern times and William Osler, Canadian, Englishman to the last, but beloved "Chief" to hundreds of American physicians, bibliophile himself, steeped in medical history! In the words from Dr. Henry Sewall's address: "If his spirit still lives and can exercise its wonted choice there is no doubt it hovers near in sympathetic accord with our designs; we who know him can catch the approval of his deep dark eyes."

Dr. Walter Jayne delivered the introductory address, a brief sketch of the chief incidents in the life of Laennec.

After a most interesting series of lantern slides showing the costumes and manners of patients and doctors of the early nineteenth century, views of hospitals, portraits of Laennec, his relations, friends, enemies, professors, etc., Dr. Webb, with his usual charm, launched into a brilliant address, informal in style and from first to last full of interesting bits of information about Laennec, his life, his work and his times.

Greatly to the regret of everybody, Dr. Henry Sewall was detained at home by illness. At the close of his splendid paper, "The Influence of Louis on American Medicine", read by a member of the Committee of Arrangements, two slides were thrown on the screen, both showing William Osler, in the one case with a number of American friends and in the other by himself at the tomb of Louis at Mont Parnasse. With the last picture still on the screen and the closing lines of Dr. Sewall's paper in their ears: "And Osler laid their wreath on the steps; and there we lay ours, too," the hundred diners rose from their seats and stood for a few moments in silent tribute to Laennec and Louis! Clinicians and pathologists, Frenchmen and—immortal!

COLORADO OPHTHALMOLOGICAL SOCIETY

The regular meeting the **Colorado Ophthalmological Society** was held Saturday, November 21, 1925, in the assembly hall of the Medical Society of the City and County of Denver, Dr. C. L. La Rue presiding.

W. C. and W. M. Bane, Denver, presented a section foreman aged sixty-four years, whose left eye had been penetrated at the temporal limbus by a small piece of wood. The wound, three millimeters long, had been artificially enlarged, and six to ten minute particles of wood removed from the anterior chamber. Discussed by C. E. Walker and J. A. Patterson.

W. C. and W. M. Bane, Denver, presented a man aged twenty-one years who had been brought before the society in November, 1920, on account of a macular condition which had at first been diagnosed as neuroretinitis, and which had first been noticed in October of the same year. There had at first been a hazy appearance of the macula, which within a month took the form of an oval grayish membrane with notched edges, the fovea being seen at its nasal edge. After a suggestion of tuberculosis by Dr. Jackson in March, 1921, increasing doses of old tuberculin were given subcutaneously, with no local or general reaction. The vision of this eye had remained at 5/60 from October, 1920, to the present time. Discussed by W. C. Finnoff.

W. C. and W. M. Bane, Denver, presented a marble quarry workman aged thirty-two years whose right eye had been injured by a piece of rock on October 19, 1925. The eye gradually became relatively comfortable. The patient had returned on November 9th on account of pain of several days duration. Lens cortex was

found in the anterior chamber, and the tension was 43 mm. The eye had become comfortable after washing out the lens material. Discussed by J. A. Patterson and F. R. Spencer.

W. T. Brinton, Denver, demonstrated with the corneal microscope the lenticular changes in a woman aged thirty years who had been noticing some failure of vision for twelve months. With the microscope, twenty or thirty discrete opacities, mostly rounded, were to be seen in the cortex of each lens near the periphery. The condition seemed to be identical with that described by Koeppe under the name of flora-form cataract. Discussed by Edward Jackson, C. E. Walker, G. E. Strader, G. F. Libby, and E. R. Neepser.

D. A. Strickler, Denver, presented a man aged forty years, whose right eye had on September 13, 1924, been penetrated by a fragment of a cast iron bed rail which he had been hammering. No trouble had been experienced until during the past three weeks, when the eye had become irritable, watery, and at times severely painful. X-ray localization gave a foreign body probably lodged in the sclera toward the back of the eyeball. (The eye was later enucleated.) Discussed by Edward Jackson and C. E. Walker.

D. A. Strickler, Denver, presented a man aged thirty-eight years whose left eye had a posterior polar cataract, and whose right eye had had a more marked posterior cataract which had subsequently cleared in part, until it presented the present appearance of a heavy membrane without the cortex. Discussed by C. E. Walker and C. L. La Rue.

W. C. Finnoff, Denver, presented a girl aged five years, who had come on account of convergent squint. The right eye fixed, and motion of this eye was normal in all directions except outward, where there was slight limitation. There was a similar limitation as regards the left eye. The underlying condition was apparently paralysis or absence of the external recti muscles. Discussed by Edward Jackson, C. E. Walker, F. R. Spencer and W. H. Crisp.

W. C. Finnoff, Denver, presented a girl of eight years who had come to the clinic on account of a chalazion. Examination had further disclosed a white area between the outer canthus and the limbus of each eye, with a greasy appearance. With the slit-lamp and corneal microscope the condition was diagnosed as lymphangiectasis of the conjunctiva.

G. F. Libby, Denver, reported the case of a child of fourteen years whose unequal pupils had become of equal size after wearing a correction of ametropia of both eyes with amblyopia in one eye. When first seen the right pupil was 5 mm. in daylight, the left 1.5 mm.

W. C. Finnoff, Denver, reported the case of a woman who had become blind in one eye after ligation of the common carotid artery on the same side on account of carcinoma secondary in the glands of the neck. The blindness was apparently due to thrombosis of the retinal artery following the ligation.

F. R. Spencer, Boulder, reported a case of microphthalmus of the left eye in a boy aged six years. The vision of the other eye was apparently normal, but the microphthalmic eye did not even have light perception. There were also, especially in the defective eye, lens opacities which seemed likely to have been acquired as the result of malnutrition, although the microphthalmus was congenital.

WM. H. CRISP, Secretary.

BOOK REVIEWS

A Text-Book of General Bacteriology. By Edwin O. Jordan, Ph.D., Professor of Bacteriology in the University of Chicago and in Rush Medical College. Eighth Edition, thoroughly revised. Octavo of 752 pages, fully illustrated. Philadelphia and London: W. B. Saunders Company, 1924. Cloth, \$5.00 net.

This popular volume is again before us in a new edition. In accordance with the advances in bacteriology, attention is given to newer researches. The Twort-D'Herelle phenomenon of Bacteriophage is briefly explained, as is the work of the Dicks and others in the causation of Scarlet Fever. Tularemia and Botulism have received additional data. Credit is given to Prof. Ivan C. Hall, now of the University of Colorado, for his original work on anerobic bacteria. Considerable space is devoted to the pathogenic protozoa, to the filterable viruses and to the bacteriology of water, milk, soil and the arts and industries.

P. HILKOWITZ.

Thoracic Surgery. The Surgical Treatment of Thoracic Disease. By Howard Lilienthal, M.D., F.A.C.S. New York City. Consulting Surgeon to Mount Sinai and to Bellevue Hospitals; Professor of Clinical Surgery, Cornell University Medical College; Fellow of the American Surgical Association; Fellow (Ex-President) of the American Association for Thoracic Surgery; Formerly Lieutenant-colonel, M.C., U. S. A. In Two Volumes with 904 Illustrations, 13 in colors. Philadelphia and London, W. B. Saunders Company. 1925. Price, Cloth, \$20.00.

This excellent work in two volumes is the only treatise to date in the English language that fully covers the subject of surgical conditions of the thorax. It thus fills a need that has long existed in this special field of surgery, while the comparatively recent development and renewed interest in thoracoplastic procedures, especially in pulmonary tuberculosis, make its publication at this time most opportune.

The opening chapter is devoted to general considerations of the thorax from a surgical point of view, with enumeration of its special features, routine preoperative preparation of patients, types of operative approach with description of technic, methods of pleural drainage, postoperative care and complications peculiar to chest surgery. Then follow adequate chapters on the physiology of the thorax as it relates to the motions of respiration, particularly those of the lungs and pleura; the roentgen examination and diagnosis of diseases of the chest, especially those amenable to surgery, which is admirably illustrated by photographs of the various postural exposures with corresponding skiagrams of pathological conditions; peroral endoscopy; methods and choice of anesthesia in thoracic operations; and a discussion on blood transfusion. A short anatomical outline of the thorax with structural relations at various levels is next presented in atlas form.

The author then covers in a most thorough and comprehensive manner by chapters the various surgical diseases and injuries of the thoracic viscera and structures, viz.: mediastinum, esophagus, thoracic duct, heart with pericardium and great vessels, diaphragm, pleura and lungs. The anatomy of the respective parts is briefly reviewed at the beginning of each chapter, together with pertinent physiology, symptomatology,

diagnosis and methods of treatment. The classical surgical procedures are clearly described in detail, and the various operative steps are strikingly illustrated by serial artistic sketches and photographs. The important and more common surgical conditions are emphasized by citation of parallel cases in the author's practice with description of treatments employed, and skiagrams and photographs which show the results obtained. A great deal of the text is naturally devoted to consideration of the surgical diseases of the pleura and lungs, especially empyema, pulmonary tuberculosis and suppuration, with particular stress on modern methods of treatment, thoracoplastic procedures and lobectomy. The therapy and technic of induced pneumothorax is fully considered under the subject of phthisis.

Short, concluding chapters are devoted to cervical sympathectomy and phrenicotomy and their application to certain thoracic diseases (angina pectoris and tuberculosis), while the closing chapter on military surgery covers the principles and treatment of the thoracic phase of battle casualties in advanced medical units, which are based on the developments of the world war, and the author's experiences at such evacuation hospitals in France.

The text is profusely illustrated and abounds in useful references, but is not clogged with statistics. The remarkable completeness and comprehensiveness, in which this vast subject is presented in these two practical volumes, make it not only a most valuable textbook but a work that ranks foremost among surgical monographs. It should be an added impetus to the present growing need and popularization of thoracic surgery in this country.

WILLIAM H. THEARLE.

Annals of Roentgenology. A Series of Monographic Atlases Edited by James T. Case, M.D., Ex-President of The American Roentgen Ray Society. Volume Six. Skull Fractures Roentgenologically Considered by William H. Stewart, M.D. With Surgical Comments. By William H. Luckett, M.D. Paul B. Hoeber, Inc., 67-69 East Fifty-ninth Street, New York. Price, \$12.00.

This book is Volume VI of a series of monographic atlases by recognized experts in a special line. Like its predecessor this volume is a welcome addition to the library of every roentgenologist. Minute details of technique, necessary for satisfactory roentgenograms of the skull, are clearly portrayed by photographs and one hundred and eleven roentgen ray studies on fifty-six full page plates demonstrate the normal appearance of different sections of the skull and various types of fractures in these localities. The interpretation of roentgenograms of the skull is very lucidly explained and the points of differential diagnosis are well emphasized between a fracture of the skull and other markings simulating this appearance.

One chapter is devoted to the time factor in the disappearance of roentgenographic evidence in a fractured skull and while no definite time is stated it is recognized that the evidence of a fracture in the skull may remain much longer upon the roentgenogram than fractures in other bones of the body. The author has demonstrated by his numerous case reports and roentgenograms the necessity of a standardized roentgenographic technique and a systematic examination in every case of skull injury.

It is a well known fact that fracture in various parts of the skull may be symptomless and pass

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unrecognized and there is also no doubt that in cases where the symptoms suggest fracture, not infrequently, unless a standardized technique is used, such as Dr. Stewart recommends, the location and extent of the fracture is not shown upon the film. Knowing these facts it is sound judgment to recommend, as is done by Dr. Luckett in the preface of this volume, that "every skull receiving violence should be considered possibly fractured until conclusively proven otherwise".

The reproduction of the roentgenograms is especially well done and shows the fine detail required in the original film of the skull to demonstrate some of the fissured fractures.

The printing of the text, like the other volumes of the series, represents the highest type of the printer's art.

The large experience of the author in fractures of the skull and his ability to state clearly the results of his experience in his roentgenographic deductions make the book very instructive and one that deserves the thoughtful attention of everyone interested in this subject.

S. B. CHILDS.

William Cadogan (His Essay on Gout). By John Ruhräh, M.D. Professor of Diseases of Children, University of Maryland. Paul B. Hoeber, Inc., New York. 1925. Price, \$1.50.

This is a philosophical discourse on right habits of living. It consists of an introduction by the author, and a reprint of "A Dissertation on Gout and All Chronic Diseases Jointly Considered". He attributes all chronic diseases to indolence, intemperance, and vexation, and says that all can be cured by correcting these, if the vital organs are not too much involved. It is surprising how a man living 1711-1797 could have ideas so nearly coinciding with those of the present day and that without the aid of physiological chemistry. This book can be read with pleasure and profit by anyone.

A. R. LANNON.

Ocular Therapeutics, a Manual for the Student and the Practitioner. By Doctor Ernst Franke, A. O., Professor of Ophthalmology and Chief of the Second Clinic at the University of Hamburg. Translated by Clarence Loeb, A.M., M.D., Chicago, Illinois. Published by C. V. Mosby Co., St. Louis, Missouri, 1925. Price \$3.50.

This Manual of Ocular Therapeutics contains prefaces by both the author and the translator. The introduction is very interesting and well worth reading. It deals with the relation of ocular diseases to general conditions. The text is divided into a (1) General Part and a (2) Special Part. Under the former are considered the treatment of tuberculosis and lues; serotherapy, organotherapy, paraspecific, protein body, irritative, ray and light therapy are dealt with; electric and medical treatment, general use of cold and heat, baths, bath and spring cures are considered, all under the head of General Treatment. In this first part the author also deals with local treatment of ocular diseases under the heads of mechanical treatment, use of warmth and cold, light and ray treatment, local medical treatment, serotherapy and electrotherapy.

Part 2 deals in detail with treatment of diseases of all of the special parts of the eye and its appendages. This part though well done is perhaps too condensed. It is really little more than an outline leaving much to be supplied by the reader.

Altogether the manual is very much worth reading carefully.

J. M. SHIELDS.

TUNING IN

Marriage Prohibition Bill in Wisconsin

A bill providing that persons afflicted with active pulmonary tuberculosis shall be prohibited from contracting marriage in Wisconsin in the future, was vetoed by Governor Blaine.

The original bill as introduced by Senator Blodt merely clarified the present statute, defining more clearly feeble-mindedness. When it reached the assembly that body added an amendment to include active tuberculosis among the prohibition clauses. It was this clause that brought the veto. The governor declared that the wording of the bill was such as to bring it into direct conflict with the state's attitude towards divorce and social problems.—Wisconsin State Medical Journal.

Income Tax Report Deductions

The Omaha-Douglas County Medical Society has taken the initiative in this state in a movement to force income tax deductions. At a recent meeting the case of the medical profession was plainly stated and on motion a sample letter to our representatives at Washington was ordered drawn up and the members of the profession are asked to take personal interest in the matter and send this, or a letter of similar purport, to his congressman and the senators.—The Nebraska State Medical Journal.

West Virginia in the Birth-Registration Area

West Virginia is in the 1925 birth and death-registration area of the United States, the Census Bureau announces. The birth-registration area now includes 33 states and the death-registration area 41.

Never Say Die

American chemists are making marked progress in the manufacture of dyes that rival the best imported from Germany before the war. The United States Tariff Commission reports that over sixty new coal tar dyes, most of which have never been made in this country on a commercial scale before, are now on the market. These are the dyes that have been imported in largest quantity up to last year.—Science Service.

The missing chemical element number 75 has been discovered by Dr. J. Heyrovsky, professor of physical chemistry of Charles University, Prague, and Doctor Doleyssek of the Prague Academy of Sciences, according to reports reaching here.

The element has been named bohemia, in honor of Bohemia, and was discovered as an impurity in the well known metal magnesium through the use of the mercury drop electro-scope.

Prof. Heyrovsky was a pupil of the famous English chemist Ramsay, who discovered several elements, including argon.

Element 75 has heretofore been known only by its number or order in the table of elements arranged according to their atomic structure.—Science Service.

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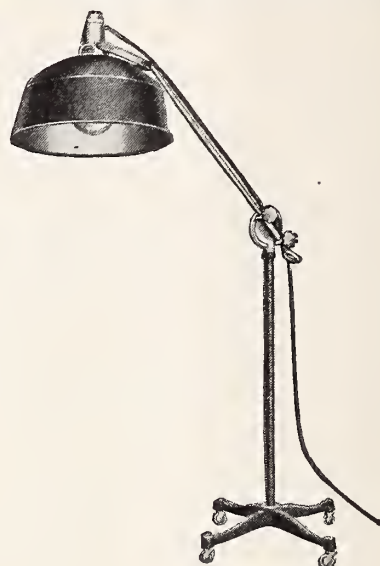
As many of these cases were recurrences after other less effective methods of treatment it seems reasonable to conclude that the intelligent use of radium by those having adequate quantities of the element and a high degree of skill in its use is the most effective weapon against localized cancer or sarcoma.

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NO. 4

THE DALLAS MEETING

The American Medical Association is probably the most powerful medical organization in existence. Fortunately its one great annual meeting this year will be held in Dallas, Texas, a relatively nearby city. This in itself ought to mean an excellent attendance from Colorado and Wyoming. The section programs are always of such excellence and variety as to be of genuine interest to any practicing physician. The fellowship is of the highest quality, and the entertainment this year will probably be characterized by proverbial southern hospitality.

We would suggest that you make your reservations at once. Information regarding train service may be secured from our advertiser. The Chicago, Burlington and Quincy Railroad office, Denver, Colorado.

UNIVERSITY CLINIC

The University of Colorado School of Medicine and Hospitals have just completed a four day clinic, to which all regular physicians of the state had been invited. The excellent attendance was amply justified by the wide range of carefully prepared clinical material. There were interesting demonstrations of the newer diagnostic methods and special exhibits of the teaching laboratories of the school, their equipment and use.

One of the objects of the clinic was to afford all the doctors of the state a short, intensive course of varied instruction covering the more recent advance in medicine. In this it is worthy of unstinted praise, for, as is well known, there has been a conspicuous dearth of graduate teaching save in the

older and larger medical centers which unfortunately do not fringe the state of Colorado.

Another purpose, of course, was to acquaint more intimately the medical profession throughout the state with the work of the medical school and its allied hospitals, and to foster good will and sympathetic support. This likewise was a laudable objective of mutual interest.

We are glad to learn that a similar clinic is to be offered twice a year—March and October. With reasonable support on the part of the profession these meetings ought to become medical gatherings of great interest to all physicians of the Rocky Mountain regions.

GOITRE

The interchangeable use of the terms bronchocile, struma and goitre to characterize an enlarged thyroid gland is to be deplored. Fortunately the more specific word "goitre" has almost replaced the other two, but this is not specific enough for use in medical literature. It in no way suggests the true pathology or the pathologic physiology of the organ and therefore leaves the reader to guess at the existing thyroid condition.

The important place that the functional aspect of pathology now holds and the lack of simpler but expressive terms, justifies the use of "adenoma without hyperthyroidism", "exophthalmic goitre", "colloid goitre", "thyroiditis", etc., in describing thyroid diseases. To students of such diseases these terms denote definite clinical entities.

Attention is called to an excellent article

in this issue of Colorado Medicine setting forth a part of the symptom complex of adenoma with hyperthyroidism and exophthalmic goitre. Such a discussion gives point to the plea for a specific terminology of thyroid diseases.

YELLOWSTONE PARK IN 1928

Cities, states and national are more and more capitalizing and using their natural resources as the years go by, and as civilization advances. We, Wyoming people, live in what was the beautiful home land of the Crow Indians. Today that once powerful tribe whose homeland covered most of our State of Wyoming is now compelled to be content with a small reservation in Southern Montana.

In the past they enjoyed the wonderful Big Horn Mountains, the great Buffalo hunts along Powder River, went to the healing waters of Thermopolis and wintered in the protection of the wonderful Wind River country with its abundance of game and delightful winter climate.

It does seem strange that we in our advancement should, like the reservation Indian, be confined to the artificial outlines of degrees of longitude and latitude rather than the natural geographical boundaries.

The physician just over any state line is the same sort of human being as the one on the other side of said artificial line. Just as good a doctor and just as good a friend.

The great states of Montana, Idaho and Wyoming have a natural playground as a common meeting point. One of the greatest natural wonders of the world—The Yellowstone National Park. Why not use that playground for a great tri-state medical and dental meeting in 1928?

Accessible to all three states, with the finest of hotel accommodations, a climate unsurpassed.

All that would be necessary in the way of either hotel or permanent camps is ours for the asking.

There we could meet for, say a four-day session; devoting the mornings to sightseeing, the afternoons to scientific meetings and the beautiful evenings to social life.

This year the Montana meeting is to be held in Billings.

The Wyoming meeting in Lander and the Idaho meeting at Sandpoint.

Next year let us have the meeting in other places more remote from these and all agree on Yellowstone Park in 1928.

A joint program committee from these three states could secure a program which would be filled by the greatest teachers and writers in our country and such a meeting would be attended and enjoyed by a very large percentage of the medical and dental professions of these states. Most married men do not understand how much pleasure their wives get by going away from their home duties. They really enjoy hotel life and all it means to have no responsibilities so far as home and meals are concerned. This we should always remember. As the ladies meet year after year they form friendships which are just as valuable and pleasing as we. Where lives there a wife who would not enjoy every minute spent in the great Yellowstone Park?

Think it over; talk it over; and let's do it!

Yellowstone Park for 1928. Montana, Idaho, Wyoming and the rest of the world.

What say you, Dr. Balsam of Montana, Dr. Davis of Idaho, to taking this question up with your societies? And what would the dentists think of such a meeting? E. W.

Sex Chemistry

The Carnegie Institute of Washington has conducted experiments with the chemical tests for sex originally worked out in Russia by Drs. Manoilov and Gruenberg. A few drops of a reagent are added to a dilute solution of animal blood. If the blood is of male origin, the solution loses its color; if of female origin, it turns to reddish-violet.

The Weaker Sex

Investigations made by Harry W. Hepner, of Syracuse University, show that women employees lose more than twice as much time as men employees working under similar circumstances.

THE GREAT IMPORTANCE OF THE THYROID IN RELATION TO CERTAIN VARIETIES OF HEART DISEASE*

JAMES RAE ARNEILL, M.D.

DENVER, COLORADO

The prime purpose of the medical profession today is the prevention of disease. It is a matter of common belief among physicians, and gradually becoming so with the laity, that the surest way of reducing morbidity and mortality is to insist upon the early removal of all diseased tonsils and adenoids and the efficient treatment of diseased accessory sinuses. Consider the dire toll taken by these diseases and the affections dependent upon them. Every practitioner of large experience can recall innumerable cases of hopeless invalidism and death which could have been prevented by the early removal of tonsils and adenoids and the intelligent treatment of sinuses. The most painstaking physician or throat specialist cannot tell positively when tonsils are not diseased, as the most innocent looking tonsils, when squeezed by the snare of the operator and dissected by the pathologist, are often found to be the most infectious. Hence a safe rule would be to remove all tonsils and adenoids in early life. This must be done by well trained operators who leave intact the pillars and racemose glands. Most of us are all too familiar with the mutilated throats left by bungling, untrained operators.

If the above plan were the rule, infectious endocarditis, pericarditis, myocarditis, chorea, acute and chronic nephritis, rheumatism, deafness and mastoid disease would soon become almost as rare as typhoid fever. In my search for causes of heart disease, especially cardio-vascular renal disease, my attention has been directed in recent years to the outside of the throat as much as to the inside. I refer to the great prevalence of goiter. The monumental work of Marine, Kimball, Lenhart and others, in their numerous goiter surveys and researches, has furnished accurate statistics concerning the great frequency of this disease especially among school children.

These investigators seem to have proven that goiter is an iodine deficiency disease. To illustrate the wide spread prevalence of goiter, let me refer to the following surveys:

¹Boulder, Colo. An examination of 5,000 school children in 46 communities showed 90 per cent to have goiter.

²Akron, Ohio. Schools 1916 to 1920 inclusive, first examination 56 per cent of girls in fifth to twelfth grade had enlarged thyroids.

³Chicago, Ill. Dr. Isaac D. Ra-lings, Director of Public Health, estimates that in Chicago alone 200,000 persons are goitrous.

⁴Cincinnati, Ohio. A goiter survey made by Dr. Robert Oleson, Surgeon of the United States Health Service, showed that out of more than 27,000 boys and girls examined 33.2 per cent had goiter—26.6 per cent of boys and 39.8 per cent of girls.

⁵Michigan. A recent survey of 32,000 school children in 4 representative counties showed 47.2 per cent to have enlarged thyroids.

⁶West Virginia. The State Department of Health says that in some towns in the state as high as 64 per cent of the school children have goiters.

⁷Iron Mountain, Michigan. A survey showed that 54 per cent of the persons examined had perceptible thyroid enlargements.

⁸Utah. School reports show that goiter prevails among 30 per cent of the boys, 50 per cent of the girls and an average of over 40 per cent of all pupils. In Salt Lake City a recent survey showed 41 per cent of the school children to be affected.

⁹Grand Rapids, Mich. An examination of 26,215 school children showed 50 per cent to have positive thyroid enlargements, boys 32.7 per cent, girls 67.3 per cent.

¹⁰Fort Wayne, Ind. Examination showed 62 per cent of school girls 10 to 18 years old have goiter.

¹¹Wexford County, Mich. 2,021 girls examined, 63.4 per cent showed goiter.

¹²Zurich, Switzerland. An examination of the school children was made prior to 1922. Eighty-seven and six-tenths per cent of the children had goiter.

¹³Champaign, Ill. At the University of Illinois out of 1,335 young women examined, 445 or 33 per cent had goiter.

¹⁴Houghton County, Michigan. 6,865 girls examined, 70.5 per cent showed goiter.

¹⁵Detroit, Mich. A survey on girls in Detroit High School showed 46 per cent had enlarged thyroid.

¹⁶Cadillac, Mich. Of the 2,247 boys and girls examined, 50.4 per cent showed thyroid enlargement.

It would seem that goiter is almost omnipresent. There is a definite association between colloid goiter, i. e., simple goiter and the subsequent development of adenomata of the thyroid, in a certain per cent of cases. Some one has said there are no innocent goiters. Certainly there are no innocent adenomata; sooner or later they become toxic and if not properly treated surgically,

*Read before the annual meeting of Colorado State Medical Society at Colorado Springs, Sept. 29-Oct. 1, 1925.

serious cardio-vascular and nervous diseases eventuate.

Bram of Philadelphia, who is the most enthusiastic proponent of the medical treatment of Graves' Disease, is just as insistent that all adenomata be treated surgically as that all exophthalmic goiter cases be treated medically. In our present discussion, attention is directed particularly to the toxic goiter heart, and not at all to the mechanical goiter heart, Falta states that the coincidence of goiter and cardiac disturbance is very common. The statistics of Schranz, which are based on an investigation of 264 goitrous school children, 117 goitrous adults, and 720 autopsy protocols of the Innsbruck Pathologico-Anatomical Institute, show that after subtraction of the valvular defects, 23 per cent of the children and 49 per cent of the adults suffered from heart trouble. Of the autopsied cases 188 showed degenerative alterations of the cardiac muscle, some with hypertrophy. The fact that hypertrophy and premature degeneration of the cardiac muscle are found so frequently in the goitrous with cardiac disturbances indicates that we are here not dealing with the ordinary forms of hyperthyroidism.

Marine, Kimball, Lenhart and others have proven simple colloid goiter of childhood to be an iodine deficiency disease and have also proven that colloid goiter can be prevented and cured by proper iodine treatment, especially by the use of iodized salt and small doses of sodium iodide. If this plan could be generally followed, the next generation would reap the great reward of a striking reduction in cardio-vascular disease. The present generation of patients, however, will continue to show innumerable cases of adenomata which may or may not be recognized by the older family doctor. Fortunately the present generation of doctors is becoming thoroughly saturated with knowledge of goiter. A fairly large experience has convinced me of the fact that great numbers of toxic adenomata go unrecognized and that as a result many patients die a cardio-vascular death unnecessarily. Early recognition and operation would have cured these patients.

Judging from my own experience this fact is not generally recognized. It is only of recent years that I have begun fully to appreciate the importance of adenomata in their relationship to heart disease, morbidity and mortality. Every examination of a patient should include a careful inspection and palpation of the neck. Whenever possible this should be supplemented by a fluoroscopic examination of the chest in order to determine the presence or absence of substernal or intrathoracic goiter. If this plan is followed as a routine, innumerable cases of thyroid disease will be detected, which would otherwise go unrecognized. In addition to these examinations, basal metabolic rates should be run whenever possible. However, one should keep in mind the possibility of error in all laboratory work. A rapid heart may mean nervousness rather than hyperthyroidism. During the past year I have seen two cases in which grave errors were made by the laboratory technician and have learned of others from colleagues. A highly neurotic young woman was sent to me by a physician who expected me to confirm his diagnosis of an extremely toxic goiter and agree with him as to the necessity for immediate operation in order to save the patient's life. Basal metabolic rates of plus 130 and plus 115 had been found by supposedly skilled technicians. My history and physical examination convinced me that we were dealing with the case of a neurotic, enteroptotic young woman. Basal metabolic rates were again run by our own technician and a plus 10 and plus 4 were found. Had entire dependence been placed upon the first rates, this patient would have been unnecessarily subjected to serious operation and an expense which she could ill afford. A similar but less extreme mistake was noted in another strikingly neurotic and hypochondriac woman of middle life. The apparatus itself may be working imperfectly or the patient may be overly nervous or excited by a strange and new test, making deductions erroneous. Physical examination should be checked by basal metabolic tests and vice-versa, in order to avoid serious error.

The differentiation between toxic adeno-

mata and Graves' disease is not always easy. It is extremely important according to Plummer and Bram to make a correct diagnosis, as toxic adenomata are made worse by treatment with iodine, while the preoperative treatment of Graves' disease consists in the administration of Lugol's solution. Occasionally, as in the case of a Colorado physician, Dr. X, age 59, one finds both adenomatous and parenchymatous degeneration of the thyroid. This patient had lost 33 pounds in weight. The emaciation together with some obscure abdominal symptoms and his great weakness caused some of his medical advisers to diagnose malignant disease. The basal metabolic rate on March 25, 1922, was plus 35, on June 23, 1922, was plus 32, on July 28, 1922, was plus 38. The patient complained of his heart throbbing and pumping too hard. He was very weak and had a tremor. The various symptoms first manifested themselves in October, 1921. His pulse ranged from 100 to 110. Apparently operation was necessary to avoid irreparable damage to the cardiovascular system. The patient was operated July 31, 1922. There has been practically a restitutio ad integrum with excellent chances of reaching a ripe old age.

Another Colorado colleague of about the same age, Dr. Y was for years diagnosed as a case of neurasthenia, while suffering with a severe hyperthyroidism. By the time a correct diagnosis was made and the patient operated, the myocardium had suffered irreparable damage. Electro-cardiograms made at the Mayo Clinic and in Detroit showed fibrillation. The doctor is now a digitalis addict, with swollen legs and a firm conviction that all this could have been avoided by a correct diagnosis.

Early recognition of hyperthyroidism with operation is often rewarded with long subsequent years of health and activity. This fact is well illustrated by the following case history. Twenty years ago a dentist in his early forties consulted me because of cardiac symptoms. He already showed a mitral systolic murmur with a rapid heart. Examination revealed a moderate enlargement of the thyroid with symptoms of hyperthyroidism.

At that time many of us were not recognizing toxic adenomata as we do now, but were simply diagnosing goiter with hyperthyroid symptoms. Nor were we so fully cognizant of its etiological connection with heart disease. I urged a vacation instead of advising an operation. While on this outing the patient consulted a heart specialist of international reputation. He was told that he had a valvular heart disease. Convinced that the heart signs and symptoms were dependent on the toxic goiter, I urged the patient to consult Dr. Charles Mayo, as very little goiter surgery was done in Colorado in those days. The patient was operated and presently lost his heart disease, and has remained quite well and active ever since, although his kidney tissue as well as the myocardium had felt the blow of the toxic thyroid secretion. This was shown by the persistent presence of albumin and a few casts from time to time in the urine. A year's delay in the operation would have told a very different story.

We are all familiar with the striking and extreme cardiac and vascular signs of severe Graves' disease and we marvel that a heart can stand up under the strain so long. However, most of us have failed thoroughly to appreciate the importance of the small tumors of the thyroid (called adenomata because of their resemblance to a gland), in their role as causes of serious cardio-vascular disease. Many times they are so small that they escape the attention of the patient and the examiner; again they are of fair size and are recognized, but the cardio-vascular symptoms are so overpowering that all the thought of the physician is given to the treatment of the failing heart, with digitalis and caffeine and strychnine, and no consideration is given to the real cause of the condition and its removal. A toxic adenoma is continuously pouring its poisonous secretion into the system and no attempt is made to remove it. The patient frequently states "Why! yes, I have had that goiter for a dozen years and it has never done me any harm before and I am sure it is not doing any harm now". The patient's statement is meekly accepted as authority and the doctor

goes ahead administering his digitalis and sedatives instead of resorting to surgery, or if this is contra-indicated, to radio-therapy. This mistake is made countless times every day throughout the world. Personally, I am making it less often than I did formerly. A few years ago I followed this same plan with an important patient, a woman in middle life, finally sending her to a sanitarium in California. The inevitable cardiac death followed in due season. The sanitarium chief was no wiser than I; he failed to recognize the importance of the toxic adenoma. This patient should be alive today. Another woman patient escaped this cardiac death by a narrow margin. She was a woman of 64 and was sent to me from Yuma, Colo., in an extreme degree of cardiac decompensation. Hers was a most extreme case of auricular fibrillation with murmurs at the mitral and tricuspid orifices, marked dropsy and enlarged liver and extreme dyspnoea. She had a very definite goiter with adenoma, but I paid no special attention to this except to note it and dismiss it. The patient recovered sufficiently to go to California and again another most excellent California internist paid no more attention to the goiter than I did. On her return to Yuma her family doctor put her on goiter treatment, paying little attention to cardiac drugs. She definitely improved. A little later the death of her husband took her to Buffalo, N. Y. Here she was given an x-ray treatment of the goiter. On her return to Colorado I was surprised and impressed by her improvement. The importance of treating the goiter now dawned upon me. She was given several x-ray treatments, less and less attention being paid to specific cardiac therapy. She has continued to improve since I first treated her in August, 1921.

If a patient refuses operation or is an extremely bad operative risk—resort to x-ray or radium.

During the past few months a number of very striking and spectacular cases of toxic adenomata have consulted me. I will speak of several of the most instructive. These patients were women and their ages ranged as follows, 50, 59, 62, 64, 68 and about 69.

In four of them the presence of toxic adenomata had not been recognized, although they had been examined on various occasions. Two of them knew that they had goiters, one of moderate size, the other of enormous proportions. The importance of the mammoth goiter as the cause of the extreme auricular fibrillation, premature beats and auricular flutter was recognized by the family physician. Under a local anesthetic the large supra-sternal and intrathoracic goiter was removed by an experienced surgeon. The results on the heart of this obese woman have been remarkably favorable. This patient had weighed 225 pounds and after the adenoma became toxic lost 30 or more pounds. She carried a blood pressure of 175 to 180 systolic. Her basal metabolic rate before operation was plus 47. Another woman of enormous proportions weighed 259 pounds two and one-half years ago. Since the development of toxicity in her adenoma she has lost nearly 100 pounds. Her physician had given her the rest cure for seventeen weeks and had placed her on digitalis so it was deemed wise to operate immediately as a last resort; her pulse was persistently above 130 and she was extremely nervous. There was a systolic murmur at the apex. The patient was an extreme risk and died 28 hours after operation. She would have been a good risk two and one-half years ago, or even a year ago. Perhaps it would have been wise to have given this patient preliminary x-ray or radium treatment. Her basal metabolic rate was plus 49. Another patient, elderly and thin, ran fever and was extremely delirious and toxic with a heart which ran away with itself. The kidneys showed evidence of marked toxemia. It was not until a few days before the patient's death that I, as consultant, paid special attention to the patient's neck. Then I discovered a very small adenoma, when it was too late to consider operation. We could not run a basal metabolism because of the delirium. The rate must have been extremely high. This patient had carried an adenoma for years. The next three cases were women ranging from 59 to 68. They were extremely ill but ambulatory. They

had lost in a few months from 25 to 35 pounds. They all had excellent appetites and were not diabetic or malignant. They had either beginning or in one case fairly advanced cardio-vascular symptoms with hypertension. They were nervous and high strung. They had consulted well known physicians, but without satisfactory results. Our attention was immediately directed to the neck and adenomas found in each after careful palpation. However, in two they were so small that they were detected with difficulty. Basal metabolic rates were plus 42, plus 52 and plus 64. All of these patients were operated and with astonishingly beneficial results in a comparatively brief period. One must remember that if operation is delayed too long, degenerated heart muscles, nerve tissue and diseased kidney parenchyma cannot be restored to normal.

DISCUSSION

H. G. Brainerd, Los Angeles: I hardly feel competent to open the discussion. I have had some unfortunate experiences with goitre myself. About ten years ago a little lump came in my neck about the size of my little finger tip, which disappeared in the course of a few months without any treatment. Two years ago, or nearly two years ago, I noticed shortly before Christmas there was another one coming; I don't know whether it was on the same side or not, and my associate said he couldn't say. In fact I had forgotten the first one. After the Christmas holidays the basal metabolism was only 9 per cent above normal, and I was running a little temperature. So the doctor put me to bed and made me take Lugol Solution, and after staying in bed a month with that miserable concoction administered three or four times a day and an ice bag over my thyroid, they took me to the hospital and took out a cystic adenoma with hemorrhage into the tumor.

Leonard Freeman, Denver: Mr. Chairman: Dr. Arneill has given us a good paper on an important subject, and he has delivered it well, which is of moment in a meeting of this kind. Even those who are not pronounced endocrinologists cannot fail to recognize the marked effect of toxic goitres upon both character and physical well-being, and especially is this true if one has seen the effects of an operation on a toxic goitre. A miserable emaciated, trembling, emotional creature is transformed into a healthy useful citizen. That happens many, many times. An important point that Dr. Arneill has dwelt upon is the necessity for early operation. When cases are operated upon early, the operations are safe; they are among the safest major operations that the surgeon has to do. And in addition to that, if the operation is done early there is no particular preparation necessary. When the operation is done late, when the ravages of the disease begin to manifest themselves, it requires a long and trying preparation—in bed for weeks, perhaps for months, medication, primary operations—and the danger is very much greater than it is when the operation is done early.

Another important point is, should we always remove these adenomatous nodules as soon as they are found, whether they are toxic or not? Some surgeons maintain that that should be done. Very prominent men maintain this. I am not yet ready to acquiesce in this universal dictum, but I do maintain this; that every individual who has an adenoma, however small it may be, should be watched carefully, and at the slightest appearance of symptoms an operation should be done at once. And people should be cautioned about the danger of carrying nodules of this kind. Another important point that Dr. Arneill has emphasized is that the size of a nodule seems to have comparatively little to do with its effect. Very small nodules, no bigger than a pea, for instance, may be extremely toxic, while a very large nodule, even almost large enough to cause physical symptoms from pressure alone, may produce no toxic effect at all. This is confusing to the diagnostician, and it has led to many of the mistakes that Dr. Arneill speaks of, and it should teach us that wherever there are any symptoms pointing toward a possible toxic thyroid, the thyroid gland should be examined with the greatest care, and even when no nodules can be seen, one should take into consideration the possibility of the symptoms being due to a concealed nodule.

Tracy Love, Denver: I only wish to emphasize one point to which Dr. Arneill has already called your attention, and that is the frequency of so-called simple goitre, in the state of Colorado. Most of us here drank water in other altitudes until we were 12, 15 or 20 years old, and we received enough iodine to keep us normal, at least so far as our thyroids are concerned; but the coming generation of this state faces a serious problem. We already are cognizant of it, but I wonder if you realize how serious the thyroid problem is in this state already? A year ago the State Board of Health and other organizations secured a partial survey of the goitre situation in this state. Most of the work was done by one of the nurses of the National Red Cross association. That was kindly reviewed by Dr. Oleson, of the United States Public Health Society, whose name has already been mentioned. We have found that in this state a very large proportion of the growing children have some thyroid enlargements. Boulder was mentioned. Boulder is no exception to the rest of the state. In fact, in Denver it has been found that over 26 per cent of the boys and girls in the public schools have distinct thyroid enlargements. In some of our cities there have been found thyroid cases to the extent of 69 per cent of the school children, and it varies then from 25 to 50 and 60 per cent in a great many of our towns, especially those in the mountains. So I think we must be very much more on the alert not only to discover the early evidences of this affection, but we should begin to use iodine, as Dr. Arneill has suggested, either by the use of iodized salt, or some other suitable preparation.

C. T. Burnett, Denver: I am very much interested in the percentages of heart damage that Dr. Arneill suggested. This is especially interesting in view of the fairly recent report by Dr. F. A. Willius of the Mayo Clinic in which he states that not more than 2 per cent of the 377 cases analyzed showed serious heart damage. This certainly is not in accord with my own very limited observations, and is not in accord, I believe, with the reports in the literature. W. M. Boothby has made a rather interesting observation. He found that thyroid cases showed lack of muscular efficiency. He put these people in a tread mill and showed that they required about twice the

energy to do the same amount of work as the normal individual. The disease produces probably the same toxic effect as shown in the heart muscle, and the tumultuous action and irregularity of the heart in the thyroid cases is explained by this toxic effect. I want to emphasize again the importance of checking basal metabolic rates. We run into some very extreme rates at times. If any of you have ever gone through a basal metabolic determination, while it is not a horrible thing to the novice or non-medical person, it is rather formidable and we should not attach very much importance to a slight deviation from the normal. An error of plus 100 to plus 115 could hardly occur with any sort of technique. Dr. Brainard mentioned a rather interesting incident of taking Lugol's Solution for a long time preceding the operation. I imagine Dr. Arneill would have touched upon this if time had not been called. The importance of the use of Lugol's in the toxic goitre type prior to operation should not be forgotten. Dr. Arneill mentioned that repeated operations sometimes are necessary. I believe it has been shown that many of these early operations can be avoided by the proper use of iodine.

Dr. Anderson, Cheyenne: I have come to ask a question. We admit that nearly all the surveys show that about 50 to 56 per cent of school children have an adolescent or school type of goitre. Now the question is, what is the best method to prevent it? I am interested in the preventive medicine side of it, of course; and I have just returned from Pocatello, where I heard three papers on the program of the Idaho State Medical Association's meeting, on goitre, and I went to Salt Lake City where the Utah State Medical Association had two papers on goitre by University of California professors. The legislature of Wyoming in March was memorialized by the Lion's Club of Sheridan to pass a law prohibiting the sale in Wyoming of any salt that did not contain a certain fixed amount of a salt of iodine. It came to the senate committee and was referred to the Commissioner of Public Health, myself. I thought it would be unwise to pass the bill, as it was, and that is what gets me into this difficulty. The law as finally passed gave the Board of Health, through its Health Commissioner, the power or authority to put into operation in the state of Wyoming any measure that it saw fit to prevent goitre. Now, that is all it said. Well, I have written letters, and I have been to these places I have told you about, and asked "What is the best way?" Cleveland puts iodine in the water for a period of two weeks, twice a year; Akron gives it in tablets; Detroit does something else. I ask "What is the best manner?" Michigan passed a law this last year prohibiting the sale of any salt that does not contain iodine. There are two or three points we get from that, and one is the interest of the people in memorializing a state legislature. The people took the initiative in a medical subject. The initiative should have come from the medical profession. You men will be called upon in Colorado to decide as to what is the best method. One of the faculty of the University of California says it is just as dangerous to make all of the people of the state take iodine as it is to make all of them take digitalis or strychnine. Somebody else says something else. Now, what is the best method of preventing this type of adolescent goitre. I am told one should not take iodine in cases of exophthalmic goitre. You men have got to thresh this out. Boards of health all over this land want to know what to do about this. How are you going to pre-

vent goitre? Some say it is not a function of the state, so turn it over to the physicians. The physicians have been tardy in this, and they have lost their opportunity; but let that go. The main question here is to decide how we are to prevent goitre.

H. A. Smith, Delta: Dr. Arneill's paper is a very timely one to bring before the society. The question is to recognize and differentiate the lesions as he has. We have all attempted the same thing but not so successfully as Dr. Arneill. The thing that he touched lightly and has not been mentioned by any speaker is that they are in the beginning all medical cases. Some develop into surgical cases. He mentioned the X-ray lightly and passed it. We treat those patients with X-ray. It is remarkable how they can be carried along, and if we can carry them along a year, they are well. Particularly, I want to impress you with the fine results to be had from X-ray treatment.

Dr. Arneill (closing): It is late and I am very anxious to hear Dr. Spitzer's good paper, so will only emphasize this one point, that Dr. Brainard received bad medical treatment in Los Angeles. Toxic adenomas should not be treated with Lugol's solution. This is a mistake which is very commonly made. I see it time and again. However, the pre-operative treatment of exophthalmic goitre is with iodine.

NOTES ON THE PATHOLOGY OF A CASE OF CHRONIC EPIDEMIC ENCEPHALITIS WITH MYOCLONIA

WM. M. GREIG, M.D.

DENVER, COLORADO

The following notes on pathological findings are taken from the case record of a patient who died of chronic epidemic encephalitis. The disease was myoclonic in type with twitching, marked clonic movements, and a few generalized convulsions epileptiform in nature. The disease terminated after a course of about nine months with symptoms of a marked myelitis.

Myelitis is a rather infrequent complication of epidemic encephalitis as Spiller¹ has emphasized. Usually the lesions associated with myoclonia are most intense in the pons and medulla and involve the cord.²

The autopsy was performed on an embalmed body which had been dead for about twelve hours. The means of study were rather limited, and the only stain used was hematoxylin-eosin. As a result only the coarser and more evident microscopic pathology is recorded.

As has been stated the case was one chronic in type but a surprising feature of the microscopic examination was the fact that there was but little thickening of the

vessel walls as an indication of past perivascular infiltration. The Virchow-Robin spaces were dilated in many instances. There was a marked congestion of the blood vessels of the meninges and deep substance of both the brain and spinal cord. There were a few minute scattered hemorrhages about some of the smaller vessels of the upper brain stem and in the region of the lenticular nucleus. There was but little perivascular infiltration, only a few of the vessels showing rather poor examples of this type of pathology. There was diffuse and localized infiltration in both brain and spinal cord. A few small areas of gliosis were seen.

The above changes compare with those generally found. In addition a number of less common changes were noted. Beginning in about the middle of the thoracic cord there was seen an increase in the lipochrome element of the nerve cells, and with gradually ascending levels this increase became more marked until in the nuclei opposite the fourth ventricle the change assumed the character of collections of golden brown pigment granules. Some of the cells were filled almost to engorgement while others had but a few scattered granules. In some the granules seemed to be collected in the form of a shell about a central hyaline mass with the cell nucleus pushed to one side. Not all of the nuclei were involved. A group of affected cells would be surrounded by unaffected groups. This change was found up to the lenticular nucleus in which region there was a gradual shading off to the normal amount of the lipochrome element. Calhoun³ cites the finding of similar cells occasionally associated with the proliferation of neuroglia nuclei about the cells involved. In the present case no constant association with any pathology was noted. Some of the affected nuclei would be in the center of a rather marked infiltration, some would be found near hemorrhage, others near areas of gliosis, and others in seemingly normal tissues.

Calhoun also mentions the finding of "round, homogeneous, deeply staining bodies in the adventitia and perivascular spaces" of vessels in the region of the basal ganglia.

But one such body was seen in the upper brain stem in the perivascular space of a thrombosed vessel.

In the cord throughout the posterior columns and the posterior portion of the lateral columns, beginning in the upper mid-thoracic region, and culminating in number and size in the lower cervical region, were found a large number of small, round, almost black, homogeneous bodies, somewhat resembling corpora amylacea. Calhoun reports the findings of seemingly similar bodies.

The evidences of myelitis were noted as low as the midthoracic region. Here there was an obliteration of the axone cylinders of the posterior columns. Just anterior to the posterior horns there was a swelling of the axone sheaths associated with the formation of small vacuoles or lacunae. Ascending the cord there was a gradual increase in the change in the axone sheaths and in the obliteration of the axone cylinders until in the upper cervical region there was an entire absence of the axone cylinders except in the lateral portions of the anterior columns and in the anterior portion of the lateral columns. The lacunae formation increased in extent and in the size of the vacuoles until the original structure was lost in almost the entire area of one anterior column, the posterior half of the other, the posterior half of both lateral columns, and the anterior and lateral margins of the posterior columns. The remainder of the cord at this level contained small scattered vacuoles. There was dense infiltration and a few areas of gliosis. The height of the myelitis was in the upper mid portion of the cervical cord, the process gradually shading off into the lower portion of the medulla.

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A METHOD OF PRODUCING "DEFATTED", (NON ACID PROOF) LIVING CULTURES OF BACILLUS TUBERCULOSIS, WITH A PRELIMINARY REPORT ON THE SAME AS AN IMMUNIZING AGENT*

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The "waxy" envelope of the tubercle bacillus, identified by Tamura as a higher alcohol, and called by him "mykol", and supposed by Long to be synthesized from glycerol liberated by the hydrolysis of fats in the substrat, has been long supposed to act like a coat of armor to protect the bacillus against protective substances in the body fluids of the host, and to retard or prevent the formation of immune bodies by inhibiting the immunity reaction between the tissues and the bacillus. This has led to many attempts to "unlock" the bacillus by methods of chemical extraction, such as the antigens of Deycke and Much, Dreyer, McJunkin, and many others, which do not need to be discussed here. Farràn succeeded in producing non-acid-proof cultures of *B. Tuberculosis* by growing it for a number of transfers on agar containing no glycerine, and his results were confirmed by Weber, and by Hartmann. Recently Vaudremer has reported a similar change brought about in the bacillus by growing it for eighteen transfers in potato broth without glycerine. These are the only methods we can find in the literature in any way like that described below.

Pfannenstiel has recently shown that prolonged Soxhlet extraction with lipid solvents, chloroform, ether, acetone, and mixed acetone and ether, does not abolish the acid proof staining reaction of the bacillus. Both the extract and the bacillary residue remain acid proof. He maintains therefore that the acid proof character depends at most, only in part on the lipoids present, and is chiefly due to the difference in degree of dispersion of the colloid particles of the cell protoplasm, as compared to non-acid-proof organisms. The term "defatted" has, however,

become so firmly established in general usage, to describe a tubercle bacillus which has been rendered non-acid-proof, that we have retained it in that sense, for lack of a more accurate, but brief, descriptive term. The term "unlocked" is perhaps equally descriptive, and has the advantage that it does not assume any theory of the nature of the change involved, but it has the disadvantage that it has been used in connection with chemical methods, rather than biological.

It has been known for many years that various cultural characteristics of this or that bacterium may be altered more or less permanently by growing it in an unaccustomed environment. Examples are given in all the text books, so that there is no need to discuss the matter at length here. Some ten or twelve years ago it occurred to one of us (W.), therefore, that the problem of unlocking the tubercle bacillus might be solved by such a method, provided a culture medium could be devised, on which the organism would grow, but containing none of the material out of which the waxy envelope is formed. For the purpose of making a start, it was assumed (in 1912) that the waxy substance is synthesized from lepins in the culture medium, and it was decided to attempt to prepare a series of culture media, containing a progressively reduced amount of lepins. The work of preparing these media was undertaken by Dr. Maurice Katzman, then an assistant in this laboratory, now a practicing physician in Denver. Among the meat purchased for the purpose, there happened to be some knuckle bones, rich in marrow. For no reason which Dr. Katzman can assign, he prepared a small amount of agar, using the marrow from these bones as the base, instead of the customary meat infusion. A culture of the tubercle bacillus, only just isolated from sputum by the antiformin method, and grown on one of the

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egg media, was non-acid-proof in its first transfer to this bone marrow agar. Routine duties made it necessary to discontinue the work at this point, and it was not resumed till the fall of 1924. Since that time Mr. R. L. Fuller, a student in the School of Medicine, has been good enough to test the effect on the medium of various substances. He found that the addition of 2 per cent of a very crude preparation of lecithin, made from eggs, causes the bacillus to take on its ordinary staining character again, and we have also observed that the addition of 5 per cent glycerine to the bone marrow agar has the same effect. When subcultured to the bone marrow from standard glycerine agar, a small proportion of the bacilli are found to be acid proof, either wholly or partly, but when transferred from bone marrow to bone marrow, none of the bacilli of the second "generation" are acid proof. In view of the fact that very young cultures of the bacillus on standard glycerine medium are often non-acid-proof, it is important to note that cultures on the bone marrow medium remain non-acid-proof for a long time, four months or more. Such an old culture, when retransferred to glycerine agar, recovers its acid proof character only very slowly, so that there is some ground for arguing that the bone marrow has induced a biologic change analogous to the changes brought about in other forms by changes in the culture media, referred to above.

It seems also probable that this change is due to a deficiency in the medium, either of glycerine or of its mother substances, lipoids and fats. As will be seen presently, neutral fats are probably removed, for the most part, in the course of preparation of the medium. It is interesting in this connection to note that Nerking gives the lecithin of normal red bone marrow (dog), as 0.2017 per cent, and of cholesterin as 0.2853 per cent. In the yellow marrow they are respectively 0.1841 per cent and 0.2968 per cent; while in the skeletal muscle, the basis of the usual media, the lecithin alone, according to Fürth, amounts to 4.83 per cent, nearly fifteen times as much. There is therefore some reason for assuming that the idea

which formed the original basis for this work was correct, in that the lepins form the material from which the waxy envelope is synthesised, either directly or indirectly, as the mother substance of glycerine. The final answer to this question must be left to a later time.

The bacillus grown on the bone marrow medium is very fragile, and is easily broken up into formless granules by rough handling. Smears made gently, much as we make smears for the demonstration of flagellae, stained by the customary Ziehl-Nielson method, using hydrochloric acid in alcohol as a decoloriser, show the bacillus as a pale blue rod, with two or three dark blue granules embedded in the protoplasm, very like the granular type of the diphtheria bacillus. Clumps and thick areas in the smear are more likely to retain the red color. The bacillus continues to stain in the same way, up to four months or more, but recovers its acid resisting power when transferred to glycerine agar—immediately if transferred from a fairly young culture, more slowly, if from a very old culture on the bone marrow. It is not therefore a question of contamination, nor is the behaviour peculiar to young cultures. Cultures on the bone marrow are also Gram negative, or only very weakly Gram positive, individual organisms in smears stained with Gram's stain varying considerably in their behaviour, some being stained throughout with the counter stain (pyronin), some taking a pale, violet color, and some staining partly with the pyronin, partly with the violet.

The culture medium is prepared as follows: The ends of long bones or the vertebrae of cattle, rich in marrow, are stripped as clean as possible of fat, tendon, ligament, and muscle, and broken up with a hammer and chisel into pieces the size of an English walnut, or better, ground in a green bone grinder, such as is used by poultry men. It is not necessary to exclude rigidly portions of the bone from the shaft side of the epiphyses, but the red marrow gives better results than the yellow marrow, and should make up as much of the material as possible. Weigh, place in a suitable vessel, and boil

over the open flame for an hour or more. Decant the fluid, and when cold, remove the thick layer of fat which collects at the surface. Add water to make the amount equal in cubic centimeters to the weight of the bone in grams. Add one-half per cent salt, 1 per cent **Witte** peptone, and one and one-half to two per cent powdered agar, heat to dissolve these, and without filtering, tube and autoclave. All the lots we have so far made up have been neutral or very slightly acid to litmus without adjustment. As the tubercle bacillus does best on media somewhat more acid than that best adapted for general purposes, the reaction above mentioned serves very well.

To date we have tested the behaviour of two strains, other than the one observed twelve years ago, on the above medium. One of these was a strain recently isolated from sputum by inoculating into a guinea pig, and transferring lesions to an egg medium. This grew very slowly, but remained non-acid-proof. The other strain, which was also used in all the immunity tests described below, was obtained seven or eight years ago from Professor Jordan's laboratory. We do not know how long it had been in his laboratory before that. It now differs from typical cultures of the tubercle bacillus in several respects. It grows rather rapidly on glycerine agar, producing a wrinkled, dry, yellowish gray growth in three or four days in the incubator, which becomes more raised and wrinkled, and of a rich golden yellow color in a week or ten days. On Petroff medium, without the gentian violet, it grows at 22°, though slowly, but not on the bone marrow medium. Shape and staining reaction are typical. Injected into rabbits or guinea pigs, it causes illness with fever and loss of weight, ending in recovery after three or four weeks, but does not produce anatomical tubercle. After recovery, the animals are apparently immune for a certain time to infection with virulent cultures of the tubercle bacillus. But our data on this point is still very incomplete. It grows readily on the bone marrow medium, though with somewhat delayed pigment production, but remains, as already noted, non-acid-proof and

Gram negative indefinitely, or at any rate, for as long as four months.

Immunity Experiments

When the work on the "defeated" organism was resumed in the fall of 1923, our first efforts were directed towards demonstrating the presence of agglutinins and bacteriolysins for the tubercle bacillus in the blood of animals vaccinated with suspensions of the "defatted" organism. These experiments all ended in failure, and we shall not take the time to describe them in detail here. We did demonstrate, however, that the non-acid-proof organism serves as an excellent antigen for complement fixation tests. We have records of some forty-five tests performed on the blood of patients in various stages of the disease, and of a few supposedly non-tuberculous patients. Over 90 per cent of the known positive cases gave corresponding results, and, as would be expected, some patients not known to be tuberculous reacted positively. The most efficient antigens seemed to be either a suspension of the living organism grown on bone marrow, or an alcoholic extract of the same. A table showing these tests is given herewith. In general, the most strongly positive tests were obtained in the later stages of the disease. The series is still much too small, however, and the clinical facts available concerning the patients furnishing the sera, too meager, to permit drawing definite conclusions. This part of the work needs to be repeated and extended by tests made in conjunction with other standard antigens on selected patients.

We come now to our as yet small series of immunity tests in animals. For all of these we used suspensions of the attenuated strain above mentioned, grown on bone marrow agar, ground in a shaking machine with glass beads, and killed by the addition of 1-500 trikresol; and for infecting the animals, either before or after vaccination, a rich suspension of virulent bovine bacilli, for the culture of which we are indebted to Dr. Boissevain, was used. Vaccination for the purpose of immunization consisted in all cases of the intraperitoneal injection of three doses of the vaccine, at four or five day intervals

TABLE SHOWING THE RESULTS OF COMPLEMENT FIXATION TESTS

Patient No.	Clinical Data	Antigen No. 1	No. 2	No. 3	No. 4	No. 5
No. 1.	Pulm. Tbc.	plus 4	plus 2	-----	-----	-----
No. 2.	Pulm. Tbc.	plus 3	plus 1	-----	-----	-----
No. 3.	"No Tbc."	plus 2	plus 0	-----	-----	-----
No. 4.	"No Tbc."	plus 2	plus 0	-----	-----	-----
No. 5.	Pulm. Tbc.	plus 3	plus 1	-----	-----	-----
No. 6.	Pulm. Tbc.	plus 4	plus 1	-----	-----	-----
No. 7.	Pulm. Tbc.	plus 4	plus 1	-----	-----	-----
No. 8.	Pulm. Tbc.	plus 4	plus 2	-----	-----	-----
No. 9.	Pulm. Tbc.	plus 4	plus 2	-----	-----	-----
No. 10.	Pulm. Tbc.	plus 4	plus 0	-----	-----	-----
No. 11.	2nd Stage	-----	-----	plus 4	-----	plus 0
No. 12.	"No Tbc."	-----	-----	0	-----	0
No. 13.	Beyond Incipient	-----	-----	plus 4	-----	plus 2
No. 14.	"No Tbc."	-----	-----	0	-----	0
No. 15.	Early Active	-----	-----	plus 4	-----	0
No. 16.	Tbc. Suspect	-----	-----	plus -	-----	plus 1
No. 17.	3rd Stage	-----	-----	plus 4	-----	plus 2
No. 18.	Pulm. Tbc.	-----	-----	plus 4	0	-----
No. 19.	"No Tbc."	-----	-----	plus 3	plus 1	-----
No. 20.	Pulm. Tbc.	-----	-----	plus 4	plus 2	-----
No. 21.	Pulm. Tbc.	-----	-----	plus 4	0	-----
No. 22.	Active Tbc.	-----	-----	plus 4	plus 1	-----
No. 23.	Suspect	-----	-----	plus 4	plus 1	-----
No. 24.	Advanced Tbc.	-----	-----	plus 4	plus 2	-----
No. 25.	Advanced Tbc.	-----	-----	plus 4	0	0
No. 26.	Advanced Tbc.	-----	-----	plus 4	0	0
No. 27.	Pulm. Tbc.	-----	-----	plus 4	0	0
No. 28.	Advanced	-----	-----	plus 4	0	0
No. 29.	Advanced	-----	-----	plus 4	0	0
No. 30.	Active Tbc.	-----	-----	plus 4	0	0
No. 31.	-----	-----	-----	plus 4	0	0
No. 32.	-----	-----	-----	plus 4	0	0
No. 33.	-----	-----	-----	plus 3	Insufficient serum	-----
No. 34.	-----	-----	-----	plus 4	0	0
No. 35.	-----	-----	-----	plus 4	0	plus 2
No. 36.	-----	-----	-----	plus 4	plus 2	0
No. 37.	-----	-----	0	0	0	0
No. 38.	Suspect	-----	-----	plus 3	plus 1	0
No. 39.	Suspect	-----	-----	plus 3	plus 1	0
No. 40.	-----	-----	-----	plus 2	0	0
No. 41.	"No Tbc."	-----	0	0	0	0
No. 42.	-----	-----	0	0	0	0
No. 43.	"No Tbc."	-----	0	0	0	0
No. 44.	-----	-----	-----	plus 2	plus 1	0
No. 45.	-----	-----	0	0	0	0

Note: Antigen No. 1 is a freshly prepared suspension in salt solution of living defatted bacilli.

Antigen No. 2 is a suspension of defatted bacilli, killed by heating at 65° C.

Antigen No. 3 is an alcoholic extract of the defatted bacillus, prepared, *mutatis mutandis*, by the method of Craig.

Antigen No. 4 is prepared from the defatted bacillus according to the method of Miller.

Antigen No. 5 is Koch's O. T.

Infection was done by the intraperitoneal or subcutaneous injection (the latter under the skin of the abdomen above the pubes), of large doses of the virulent organism. It is patent that the methods employed are open to criticism on several grounds. These criticisms we by no means seek to evade, but rather we desire to acknowledge them frankly. We shall endeavor to overcome them in experiments now in progress. As we see them, they are as follows:

1. The attenuated organism used as an immunizing agent departs in several particulars, as already noted, from the behaviour of

typical cultures of the tubercle bacillus, so that the question is raised whether it really is a tubercle bacillus, or a contamination of the original culture, or a mutation. The question is probably impossible of definite answer, but we feel that, so long as it accomplishes the purpose desired, we do not need to worry unduly over it.

2. We have as yet no data to indicate that this attenuated strain may not be just as effective for the purpose of preventive vaccination, grown on standard media as upon the bone marrow agar. We do know that in its natural state, the organism produces

a disturbance of health, with fever and loss of weight, ending in recovery, without anatomical tuberculosis. In this respect it bears some resemblance to Calmette's organism. We also know that enormous doses of the defatted organism are tolerated without the slightest visible disturbance of health, and as will be seen, the organism in this form is highly efficient as a protective vaccine. Further work is needed here.

3. The brilliant observations of Calmette and his associates prove that, in the case of his strain, killed vaccines are inferior to suspensions of living organisms as an agent of protective vaccination. It is obvious that the same is probably true of our strain.

4. The method of infecting the animals which we employed produces a much more overwhelming type of infection than occurs in man, and hence not comparable to human tuberculosis. This objection is, we think, of slight importance, in the case of experiments aimed to determine the protective power of defatted vaccine, but is, of course, important in experiments designed to test its curative power.

5. We have made no distinction of sex in our experimental animals. This was a practical difficulty, which will be eliminated in later experiments.

6. It remains, no doubt, to be proved that "unlocking" the bacillus will accelerate the immunity reaction. But if any advantage is to be gained in this way, we may reasonably hope, we think, to gain more by a biologic, rather than by a chemical, method of unlocking. The bone marrow medium has an advantage over the methods of Ferràn and of Vaudremer, that it unlocks the bacillus at once, instead of requiring a long series of transfers, thus rendering possible the use of autogenous vaccines. What further advantages may accrue from this method can only be determined by experience.

The experiments fall under two heads, namely, those in which it was sought to be determined whether previous vaccination would produce resistance to infection, and those in which the object was to determine whether animals already infected could be benefited by subsequent vaccination.

In September, 1924, six half-grown guinea pigs were immunized by the injection of three doses of wax free vaccine at four or five day intervals. One animal died during the winter. The remaining five were injected subcutaneously on July 5, 1925, with 0.1 cc. of a thick suspension of living, virulent, bovine bacilli. Three of these remained free of any indication of infection, and when killed and examined on September 22, no evidence of infection could be found. The other two showed, on August 3, four weeks after administration of the infecting dose, the one a slight, the other a rather marked induration of the abdominal wall. It was decided to try the effect of vaccine on these two animals, and vaccine was administered intraperitoneally at four or five day intervals until they were killed and examined on September 22. In the meantime their condition had, apparently, improved, the abdominal induration disappearing completely in both. One animal developed a palpable pleuritic rub, first noticed on August 21, which had disappeared on August 30. This animal gave birth to a litter of two about August 30. The second animal was about to litter when she was killed for examination. At autopsy neither animal showed any macroscopic lesions. One, which had been the sicker of the two, showed one minute scar in the abdominal wall, and numerous minute white scars scattered over the surface of the lungs. By a slip, the tissues of these two animals were not separated from those of the other treated animals, and a separate histologic report on these two is now impossible.

On August 6, eighteen half-grown guinea pigs were vaccinated with a suspension of the wax free organism, and again on August 10 and 14. On August 25, eleven days later, fairly rich suspension of living, virulent bovine bacilli. (In all cases these suspensions were made by gently rubbing up portions of all were given subcutaneously 0.05 cc. of a growth of the bacillus on solid medium, in a sterile evaporating dish, with a sterile rod, with salt solution, till the fluid was distinctly cloudy.) One of the eighteen was sick a week later, due, we think, to a change in

diet, and was killed and autopsied with entirely negative results. One other animal had a pea sized nodule of induration at the site of injection on September 7, which later disappeared spontaneously. All these animals were killed and examined on September 22. None exhibited macroscopic evidence of tuberculosis. The spleens of nearly all were slightly granular, but with one or two exceptions, not enlarged. We have examined histologically six of these spleens, taken at random. The only change found is a more or less marked swelling of the Malpighian bodies, and infiltration of the same with a small number of leucocytes. In one spleen there were found small groups of what may be epithelioid cells, but no giant cells or caseation.

We may therefore summarize this part of the work as follows. Three of five animals immunized almost a year before infection remained entirely immune to very large doses of virulent bacilli. The other two recovered rapidly, and apparently completely under treatment. Seventeen animals, immunized just before infection were entirely resistant to large doses, except that one only developed a slight lesion at the seat of the injection, which healed spontaneously. It is to be noted again in this connection that the immunization might easily be carried to a higher point, and that the infecting dose was in all cases relatively overwhelming as compared with what probably ever occurs in man.

To the second group of experiments, attempts to cure the disease after it is established, belong six animals not previously immunized, which were injected on July 4 with the same thick suspension of virulent organisms used for injecting the immunized animals on the same date. By August 3, four of these showed marked induration of the abdominal wall, and two did not, possibly due to the injection having inadvertently been made into the abdominal cavity. These two, and one of the others were set aside as controls, and the other three were given vaccine at four or five day intervals until they were killed for examination on September 22. All three were pregnant at the time

treatment was begun, and one was already very sick. This last mentioned animal aborted during the night of August 6-7. Thereafter she went down hill rather rapidly, but showed a really astonishing improvement for 24-36 hours following each dose of vaccine. After the second dose she collapsed, with paralysis of the hind quarters, resembling a mild anaphylactic shock, but quickly rallied. She died August 15. Autopsy showed absolutely no trace of the former lesion of the abdominal wall, but extensive tuberculosis of the liver, spleen, lungs, and mesenteric glands. Histologically there was found about some of the large and older lesions, a slight but distinct cicatrization, not found in any of the control animals. The other two remained in fairly good condition till they were killed on September 22. Both showed extensive tuberculosis of the peritoneum, liver, spleen, and lungs, but here again histologic examination shows a distinct difference from the lesions found in control animals. We found no walling off in either animal, but the lesions, as compared with controls, are marked by a dense zone of mononuclears completely surrounding and often infiltrating the lesions clear to their centers, and the complete absence of giant cells and caseation. It seems clear that the vaccine has retarded the development of the lesions as compared with control animals, though it has not produced a cure. In view of the short duration of the experiment, from August 10 to September 22, this seems fairly encouraging, and decided us to carry another series of twelve animals now under observation, over a longer period, instead of killing them for the purpose of this report, together with a new series of fifty to be started at once.

We would like to mention one other animal, which was injected early in April with antiforminized sputum. She continued in good condition till the middle of August, except that she did not grow or gain in weight. In mid August she was greatly emaciated, and obviously very sick. From this time on she was given vaccine. She began at once to grow and gain in weight, but when killed on September 22, she showed extensive tuber-

culosis of the liver, spleen, and lungs. The histologic examination of her tissues has not yet been made.

Conclusions

1. On agar medium made from bone instead of meat infusion, the tubercle bacillus grows wax free (i. e., non-acid-proof), in the first generation.

2. Vaccines prepared by the customary method from such wax free cultures of an old, greatly attenuated strain of human type bacillus, afford practically complete protection to guinea pigs against subsequent injection of overwhelming doses of virulent bovine bacilli.

3. This protection lasts for about one year, and no doubt for a longer time, though in somewhat lower titre.

4. The same vaccine seems to have considerable curative value in established tuberculosis.

5. The wax free organism may prove to be a useful antigen for complement fixation tests.

6. It is to be hoped that improvement in the method of preparing and using the vaccine may increase its usefulness. Possibly the use of living wax free bacilli as a vaccine may be found to be both safe and advantageous.

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DISCUSSION

H. J. Corper, Denver: Dr. Whitman's experiments are extremely interesting, and if further tests prove the validity of his conception, he has been able to accomplish what the vaccinationist in tuberculosis considers ideal. Chemically most of us have considered it an impossible feat on account of the intimate combination of the lipins and fats in the tubercle bacilli with the other

cellular constituents. Dr. Long's experiments on the chemistry of the tubercle bacillus, which have been repeated by a great many other investigators, have demonstrated to us that to defat this organism requires strong chemical hydrolysis. An ideal and conclusive experiment, if experimental "defatting" is possible on the bone marrow medium, would seem to me to be one in which the animal was vaccinated by means of a defatted culture of the identical bacillus which was used, without defatting, for infecting. The tests also should be carried out on a large series of male animals, and preferably by utilizing great numbers of animals, vaccinated and infected with graded doses, to be able to approximate the range of usefulness of this method. As I understand it the method is only applicable for prophylactic purposes, since treatment after infection was found of little avail in Dr. Whitman's experiments. If this is the case we are then confronted with the practical problem, should the method prove valuable, of deciding upon the appropriate time to vaccinate. Here arises the old quandary faced by Calmette with his bile-grown bacilli, Friedmann and his turtle bacilli, and the advocates of tuberculin. From an academic standpoint Dr. Whitman's observations, if borne out in more elaborate and controlled studies, will prove of decided interest, but practically in formulating a safe plan for utilizing such a method we are confronted by the eternal tuberculin question. In closing, may I encourage Dr. Whitman to continue his studies and compliment him on the progress thus far made.

Felix Baum, Denver: A few words in addition to this very interesting paper. Robert Koch has already said that the problem of immunity in tuberculosis is solved as soon as we are able to inject a tubercle bacillus, which has the following properties: It must be a non-virulent living bacillus, and not influenced by any chemical or other process. Dr. Corper has mentioned the fact that numerous authors have tried to immunize against tuberculosis with acid fast bacilli. The Frenchmen, Dubard and Terre of Pasteur's Institute, and the Germans, Moeller, Rabinowitsch, Lange and some others, used an acid fast living bacillus, which looked like a tubercle bacillus but was only an acid fast saprophyte. This was the reason these men did not succeed. In the foreground of discussion today is Calmette's B. C. G. bacillus, which is a living tubercle bacillus. Calmette claims that his bacillus is non-virulent and acid fast. Therefore, the acid fastness has nothing to do with the virulence. How about Dr. Whitman's bacillus? Dr. Whitman's bacillus is not acid fast. The only difference between the virulent living human bacillus and Dr. Whitman's bacillus is the acid fastness. Therefore, the virulence is represented by the acid fastness. I wish Dr. Whitman would prove his statement which is contradictory to Calmette's.

Charles Boissevain, Colorado Springs: I wish to thank Dr. Whitman for his paper. I have been hearing of him for sometime, so I was very anxious to hear the detailed statement of his experiments. I do not think that his experiments can be compared to those of Calmette, which were done with living bacilli of low virulence. Many other people have tried vaccination with killed bacilli, and especially in this country extensive experiments have been done. It has been generally found that killed bacilli give a certain degree of immunity, that is limited by the quantity of the second infection. If killed bacilli are injected into a guinea pig, that guinea pig will resist a very small dose of living bacilli, and if the dose

is increased the guinea pig dies just the same. For this reason I think it would be interesting for Dr. Whitman to repeat his experiments, that we may know exactly what dose the guinea pig can resist. I cannot quite agree with the theory that he has given about the reason of this defatting. I should say that the appearance of defatted bacilli in cultures of Dr. Whitman must be due to some mutation. It has been well known that some bacterial cultures sport, and probably Dr. Whitman's experiment is one of these sports. It will be interesting to hear the result of his further experiments, and I will be very thankful to Dr. Whitman if he would supply me with a specimen of his culture so that we can take this up too at the same time.

Dr. Whitman (closing): I am quite ready to admit that the strain that I am using may be a sport. It may not be a tubercle bacillus at all. It grows so fast that it clouds its title to authenticity; but it seems to me, if it produces results, we do not need to bother ourselves with after questions. If I can protect animals with it and perhaps cure animals with it by using it over a long period, I am satisfied as long as it works. It is, of course, desirable that autogenous vaccines should be used. I have used this bacillus simply as a convenience so far, because of its rapid growth, because I was in a hurry. I have planned to do some work with autogenous vaccine prepared in the regular way this winter. I cannot use autogenous vaccine as long as I adhere to this culture because it will not kill animals. Whether it is grown on standard media and is acid proof, it still fails to kill animals. They get well. And after they get well these animals are immune. I am glad to know of the exclusive use of male animals. I don't know whether I can tell the difference between a male and a female animal. I will have to learn. I shall also be glad to try to cut down the dose in order to avoid the overwhelming infection which was produced in my first series. Those animals are not yet far enough advanced so that I feel justified in sacrificing their lives. I plan also to use living organisms as an immunizing agent. It is quite true finally that

treatment, so far as it has gone at present, is in a measure ineffective, that is to say, I have not produced any absolute cure except in partially immunized animals. These were readily cured. But I have shown this much (some of these things are a little bit subjective. I do not want to insist upon them too strongly), but everybody in my laboratory who has had anything to do with these animals this summer, and there have been half a dozen working on them one time or another, is entirely convinced that the vaccine improves the condition of the guinea pigs, that they do better when they are vaccinated than control animals do. The histologic lesions produced by the bovine bacillus in animals that I left untreated, and those I produced in animals I injected and then treated with this vaccine, showed a distinct difference, and there is no question about that. The control animals show a very rapid invasion with little tendency to wall off, even by leucocytes, and early giant cell formation in huge numbers, and caseation. These animals have only been under treatment for five weeks. If you could cure a human patient of tuberculosis in five years you would consider you were doing pretty well. I have had these animals under treatment for five weeks, and in those animals there was absolutely no caseation and not a single giant cell. No giant cells, no caseation and a dense protective zone of lymphocytes around the lesion. Now, that is something. I do not mean I have proved my case. I am just as anxious to avoid excessive claims as anybody, I think. At any rate, it seems to me enough to encourage me to go ahead. Now, may I add one more word: I do not know whether there are any newspaper men here or not. If there are, I would like to urge upon them this consideration that the publication of a statement that a cure for tuberculosis has been found, before it actually has been found, is going to cause considerable suffering and sorrow and grief to thousands and thousands of people. If you have any human sympathy in your heart, you won't talk about this to laymen and fill them with false hopes.

COLORADO AS A RESEARCH CENTER IN TUBERCULOSIS*

H. J. CORPER, M.D., Ph.D.

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Research has become such a broad term and is so far reaching in its meaning that at times honest omissions seem justified for the sake of brevity. However, in evaluating Colorado as a Research center in tuberculosis the subject naturally falls into two main divisions, i. e., as we are viewed by the medical colleagues and friends of other states and as we Coloradans should view ourselves. It is fortunate that occasionally there comes into our midst a friend with far reaching vision who can properly size us up and in an unbiased fashion point out our

future course and responsibilities. Just a few months ago Allen K. Krause in talking before the City Club of Denver¹ pointed out Denver's responsibility as a health resort and in doing so emphasized our position as a tuberculosis center. "Denver", Krause said, "is the largest city in America which has been built to a great extent by sick men, and, therefore, is interesting from a public health standpoint. It is a remarkable example of what men not entirely physically fit can do in city building and therefrom enjoy a worldwide reputation as a health center. It might not be pleasant but it is a fact that most people the world over at the mention think of Denver first as a health

*Read at the annual meeting of the Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1, 1925.

resort. We might not desire to have it so known but we must face the condition as it exists. Because of this Denver has a remarkable opportunity and, while it cannot subsist alone from health advantages, it should take full advantage of and make the most of them. Denver should, so to speak, get itself in tune with the mountains and surroundings and plan its city for the betterment of the public health. Nothing will keep away the poor consumptive and this fact creates a situation as difficult as any that can be conceived. But if the proper effort is made to meet the situation, it will care for itself. The health advantages need not be advertised, but if the sick are properly cared for here, it will naturally attract desirable people." "To make Denver first of all a safe place in which to live" he thought "would attract better medical talent and if it is known that there is no unreasoning prejudice against tuberculosis, many ideal citizens will come here to live. No place in the world has such natural advantages". Krause might well have substituted Colorado for Denver when pointing to the hand-writing on the wall and before a medical audience might have asked "Are you medical men keeping pace with your responsibilities?"

If Colorado is to be a tuberculosis center, and evidently our natural advantages are leading us to this, it seems logical that the best tuberculosis talent must, for obvious reasons, congregate here. Then why should not the best original tuberculosis investigations emanate from here? Just as Krause places the responsibility with Denver as a health city, so I am inclined to add a second responsibility, likewise applicable to Colorado, that of a research center in tuberculosis.

There are a number of closely interwoven requisites which demand fulfillment before a community or institution can even pride itself as coming under the broad term of a research center or research institution. Probably most important of these is the presence of men who have demonstrated their ability by past achievements and who are still actively engaged in the furthering of knowl-

edge as demonstrated by their present accomplishments. Of minor importance is the availability of inanimate buildings and facilities. Too many organizations are overloaded with the latter and entirely neglect to make provision for the former.

Medical research is frequently arbitrarily divided into clinical and laboratory research, an absurd classification based on our too frequently abused medical school pedagogic classification of courses. If research implies the mere making of clinical case records or postmortems without a view to their subsequent study for new and original information, this classification may hold; but the research man, seeking for nature's truths, knows no barriers such as those set down by mere arbitrary terms. If his search leads to the patient or to the laboratory of physics or of chemistry, obstacles are soon set aside. The clinical investigator, who is not capable of utilizing the laboratory when occasion arises, must of necessity be limited in accomplishment. So a state, which can boast only of hospitals or sanatoriums, requires new blood.

Let us now survey Colorado as a research center in tuberculosis, a survey not based upon its hospitals, sanatoriums, consumptives or population—all of which should, but do not, play a part—but based upon its original accomplishments in the field of tuberculosis by which the world will gauge us and as a result of which talent will come to aid and study with us.

In the field of tuberculosis Colorado is internationally known for four outstanding original contributions: The demonstration of a chemical factor in resistance to tuberculosis, which also explains pulmonary susceptibility to this disease; lymphocyte increase at high altitudes and its bearing on tuberculosis; postural treatment of pulmonary tuberculosis; and the chest belt as a therapeutic agent in pulmonary tuberculosis.

Since medical research is mainly the product of men, it seems fitting first to review briefly our resources from this angle.

Colorado can point to two groups of men responsible for its position in research in tuberculosis, whose accomplishments have

emanated predominantly from the laboratory or in close affiliation with it. In our state at least it would seem that Dr. Trudeau's statement, "It is mainly to laboratory research work that we must look for the solution of many of the as yet unsolved problems of tuberculosis, and for the advances in our methods of prevention and treatment used", is being admirably borne out. One group in Denver at the National Jewish Hospital consists of Drs. Henry Sewall, Robert Levy, Saling Simon, William C. Finnoff, Harry Gauss, Ward Burdick, Donald O'Rourke, Max B. Lurie, F. Williams, Nao Uyei, Felix Baum, L. T. Black, J. L. Dubrow, Dwight Allison, Saul Mebel and R. Gustavson, with H. J. Corper as Director, and the other group at Colorado Springs, "The Colorado Foundation for Research in Tuberculosis"² under the direction of Dr. Gerald B. Webb and includes Drs. C. T. Ryder, C. H. Boissevain, G. B. Gilbert, S. W. Schaefer, J. A. Sevier, W. F. Drea, Eric Webb, B. D. Good and M. E. Staines.

In Denver, Corper, Lurie, Williams, Allison and Uyei are at present primarily engaged in problems on the chemical factors in resistance to tuberculosis and on chemotherapy, Sewall is engaged in studies on susceptibility to tuberculosis under abnormal conditions, Simon on therapeutic artificial pneumothorax, Robert Levy on clinical and pathologic changes in laryngeal tuberculosis, Finnoff and O'Rourke on experimental pathology and therapy of tuberculosis of the eye, Gauss on intestinal tuberculosis, Baum and Black on diagnostic tests in tuberculosis, and Dubrow on experimental surgery in tuberculosis.

In Colorado Springs, Webb is engaged in experimental immunity studies in tuberculosis and in postural rest as a therapeutic measure in pulmonary tuberculosis, Ryder is studying the gas requirements and variations in virulence of tubercle bacilli, Gilbert is engaged on vaccination studies in tuberculosis, Boissevain on the general biology of the tubercle bacillus, ultraviolet radiation and the effect of high altitudes on the animal organism. Some of these studies are

being pursued in the laboratories of Colorado College at Colorado Springs.*

In the laboratory at the Modern Woodmen of America Sanatorium for Tuberculosis at Woodmen, Colorado, Dr. E. D. Downing is at present investigating fungus infections of the lungs and other pulmonary conditions.

Aside from the studies in tuberculosis being carried on by the above laboratory groups of investigators there are a number of others who have contributed and are at present engaged in predominantly clinical investigations only.

At the Cragmore Sanatorium at Colorado Springs, Dr. Alexius Forster is studying postural drainage and heliotherapy especially for laryngeal tuberculosis; at the Jewish Consumptive Relief Society Sanatorium at Edgewater, Colorado, Dr. I. D. Bronfin is continuing clinical investigations on induced and spontaneous pneumothorax, heliotherapy and abnormalities of the upper respiratory tract; and at the Evangelical Lutheran Sanatorium at Wheatridge, Colorado, Dr. Lorenz Frank is carrying on clinical investigations on vital capacity, and chemical and morphologic changes in the blood in pulmonary tuberculosis.

In addition to these, Colorado is fortunate in having within its bounds one of the largest government tuberculosis sanatoriums at Denver, and with it the opportunity of contact with excellent medical and surgical talent in this field. Unfortunately the army tuberculosis hospital laboratory has not as yet attained the stage of organization which will permit continuous investigative work in the field of tuberculosis, but two officers in the clinical branches deserve mention here, Lieut. Col. E. H. Bruns for his studies in heliotherapy in tuberculosis and Major W. H. Thearle for his studies on thoracoplastic surgery in the treatment of pulmonary tuberculosis. Fitzsimon's General Hospital was one of the first sanatoriums in America to take up heliotherapy and thoracoplastic surgery on a rather large scale, the results

*The information on investigations at present being pursued by groups or individual workers has been obtained through personal correspondence and in every case has been preceded by scientific contributions which appeared in current medical periodicals.

of which studies have been published in medical periodicals at frequent intervals. During a short residence as laboratory chief at the Fitzsimons's General Hospital, Major James S. Simmons studied the effect of light on tubercle bacilli and the isolation of the bacilli from bile, indicating the latent possibilities of these laboratories.

Since research is the keystone without which medical teaching would sink into mediaeval empiricism and final oblivion, and since the medical teacher who does not keep abreast of the times is bound to suffer a like fate, it seemed desirable here in estimating Colorado as a research center to review Colorado's teaching resources in tuberculosis.

There are at present two postgraduate schools in tuberculosis in the United States, aside from those under the auspices of the United States Army (Fitzsimons General Hospital at Denver, Colorado, each year gives such courses for army officers) whose admissions are limited to army officers and officers of the United States Veterans' Bureau; the pioneer being the Trudeau School of Tuberculosis at Saranac Lake, New York, and the other being in our state—The Colorado School of Tuberculosis at Colorado Springs. The Colorado School of Tuberculosis³ was organized during the summer of 1919 for the purpose of offering special courses in the study of tuberculosis to graduates of medicine. The school has an able staff of twenty-two tuberculosis specialists and utilizes the unusual facilities of the private and public sanatoriums and hospitals of Colorado Springs for primarily clinical teaching purposes.

Colorado has just one medical school—the Colorado School of Medicine at Denver—which, until the latter part of the past school year, has confined itself to the regular didactic routine courses of all medical schools in spite of the fact that it is located in especially favorable surroundings to teach its students the subject of tuberculosis in a thoroughly practical manner. By request a small group of last year's medical graduates were given the opportunity of rounding out their entire medical knowledge in a special

theoretical and practical course at the National Jewish Hospital at Denver, given by the author and Dr. Felix Baum, Medical Director, assisted by the hospital staff.

David Stewart⁴ of the Manitoba Sanatorium states that "The modern sanatorium . . . is a real hospital, fairly equipped for the diagnosis and treatment of disease in general, fully equipped for the differential diagnosis and treatment of certain special kinds and phases of disease. Its range in diagnosis may be fairly considered to cover all diseases of the respiratory tract, tuberculous and non-tuberculous, tuberculous disease of all forms and all organs, and conditions of debility arising from any cause. Its range in treatment takes in the whole of tuberculosis and a good many non-tuberculous pulmonary conditions besides". Sanatoriums, in Dr. Stewart's view, are to tuberculosis clinics more or less what hospital wards are to out-patient departments—places with opportunities for more complete diagnosis, longer observation, and more thorough-going treatment. "If there are any good reasons why the sanatorium should exist and special types of cases be gathered into it, there are exactly the same reasons why these special phases of disease should be presented to medical students." The University of Colorado School of Medicine is fortunate in its close proximity to sanatoriums with an abundance of available material, and it is hoped it will encourage the use of these facilities to its students to a greater extent in the future so that graduates from this school will be known throughout America for their ability as students and practitioners in diseases of the chest, and students from elsewhere interested in tuberculosis will prefer to obtain their education here. Colorado should rank with Saranac Lake as the source of tuberculosis and chest specialists.

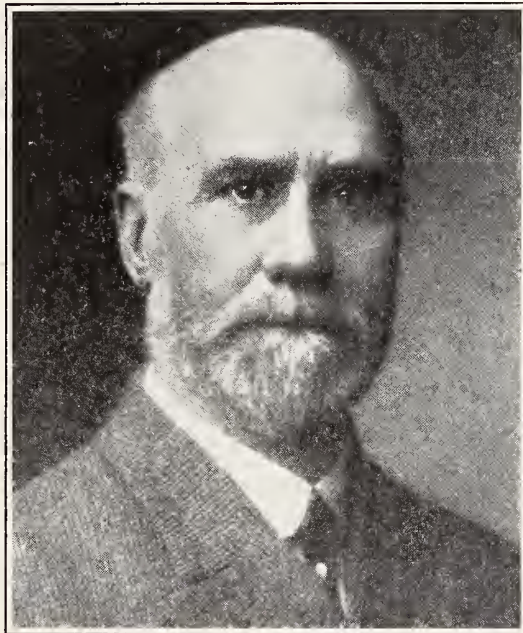
Stewart further aptly says "The sanatorium exists primarily not to treat tuberculous patients, nor to diagnose tuberculosis, but to banish tuberculosis. If more can be done toward the banishment of tuberculosis by teaching than by treating, then it is more definitely our duty to teach than it is to



Gerald B. Webb



Saling Simon



Henry Sewall

E. H. Bruns



W. H. Thearle





National Jewish Hospital at Denver



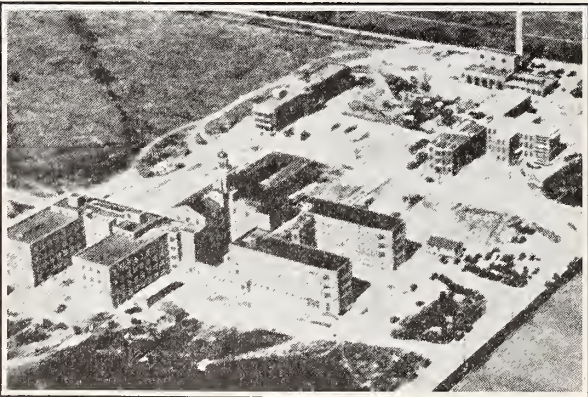
Research Department, National Jewish Hospital



Cragmore Sanatorium, Colorado Springs



Modern Woodmen of America Sanatorium



University of Colorado School of Medicine



Colorado College, Colorado Springs



Fitzsimons General Hospital at Denver



Heliotherapy Ward, Fitzsimons Hospital

treat. At the end of each year, if I had a choice, I would choose as the year's work rather what we have done in teaching than what we have done in healing".

Whether we agree with Stewart or not and, in spite of the ever lengthening list of subjects to be taken by the medical students' we in Colorado should keep alert to the fact that our natural advantages shoulder us with responsibilities we cannot well shirk without loss of prestige and respect among our colleagues. Aside from an investigation on "A Method for Producing Defatted Living Cultures of Tubercle Bacilli" by Dr. Ross C. Whitman at the University of Colorado at Boulder, the staff of the medical school is at present pursuing no original investigations in tuberculosis.

People with common aims, bound together by the endeavor to combat a common enemy or to promote knowledge, usually congregate to exchange opinions and to contribute to each other the fruits of their experiences and labors. Thus it was that in Colorado, the tuberculosis center, there developed two societies almost coincidentally and for like purposes. In Denver there existed for many years a tuberculosis study club, which was more or less restricted in its organization and was, to all intents and purposes, a round table of sanatorium physicians. From this movement, however, on October seventeenth, nineteen nineteen, there developed the Denver Sanatorium Association⁵ whose membership was open to all physicians of Denver specializing in tuberculosis or sanatorium work. The aim of the association was thoroughly scientific, "To Promote the Study of All the Phases of Tuberculosis—Clinical, Institutional and Sociological—Through the Medium of Close Co-operation of the Sanatoriums". At the second meeting, October twenty-eight, nineteen nineteen, a constitution was drawn up and regular officers elected. The Society now elects each year an honorary president, an acting president, a vice-president and a secretary-treasurer. Each year a number of prominent tuberculosis investigators are invited to present the results of their studies before the society. Monthly meetings are held. In ad-

dition the society holds two joint meetings annually with the El Paso County Sanatorium Association, one at Denver and the other at Colorado Springs.

The El Paso County Sanatorium Association⁶ was organized through the effort of Dr. C. O. Giese of Colorado Springs about ten months after the inception of the Denver Sanatorium Association on August eighteenth, nineteen twenty, its purpose being to "band together the physicians of El Paso County, interested in tuberculosis, for the purpose of studying and propagating information on this disease". The membership consists of doctors of medicine in good standing in the El Paso County Medical Society and who are interested in tuberculosis work. Monthly meetings are held besides the two joint meetings with the Denver Sanatorium Association.

Since its inception in 1919 the Denver Sanatorium Association has been carrying on investigations of a statistical nature through a committee specially appointed for this purpose and under the chairmanship of Dr. Henry Sewall. One notable contribution on Tuberculosis Mortality in Colorado was published in 1923 which opened a tremendous field for future investigation and definitely established the climatic advantages of Colorado. This study was aided by the National Research Council and by the Colorado State Board of Health.

Although the El Paso County Sanatorium Association has pursued no scientific investigations, it is at present endeavoring to collect data pertaining to the advantages and disadvantages of climate in the treatment of various forms of tuberculosis.

The men who have been carrying on investigations on tuberculosis in Colorado deserve the sincerest appreciation and support of all Colorado's physicians, for their studies have in most cases been carried on under the handicap of crowded and adverse circumstances. Many of the pioneers have even been willing to house their experimental animals in their own homes, as did one of the older generation of Colorado's research colleagues when he and a prominent Denver surgeon carried on painstaking experiments

many years ago, and, out of pure love for science, even now he is ever willing to forego conveniences to achieve and gain knowledge in this field in spite of almost four score behind him. This loyalty to a worthy cause should make every Colorado physician anxious to contribute at least a small share to the success of Colorado as a tuberculosis research center by giving of himself, if he can, or by influencing others to do so. It is thus that the best tuberculosis talent will be drawn to us as well as being developed among us and that facilities will be established here so that Colorado will be the outstanding seat of learning in tuberculosis of the scientific world and be a pride to our American colleagues.

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⁵For the information on the Denver Sanatorium Association the author is duly appreciative to Dr. Maurice Levy, Secretary of the Association practically since its inception.

⁶The author appreciates the kind cooperation of Dr. W. C. Howell, Secretary of the El Paso County Sanatorium Association in supplying the data on this Society.

DISCUSSION

Dr. Giese, C. O., Colorado Springs: It is to be regretted that Colonel Bruns or Dr. Foster is not here, because they could do this very much better than I. I can speak not as a research worker at all, but only as a clinician. There was a very significant thing brought out, I think, in one of the recent social surveys that has been made, a repetition of one that was made five years ago. The social worker who made this survey in Colorado Springs used this expression, and I think as Dr. Corper has said, she might as well have applied it to Colorado as to Colorado Springs. She said, "Whether you know it, or not, tuberculosis is your leading industry." That is a rather significant thing, but we need not go into the details and the facts and figures with which she bolstered up that statement, but it is certainly true. If tuberculosis is our leading industry in Colorado, we ought to do something about it. There was a time when mining was our leading industry, and through the efforts of men interested in mining, we have, of course, the Colorado School of Mines. I might say, too, that research is probably the most important, or one of the most important things in this problem that is ours, and as Dr. Corper says, it is ours, we have it, and whether we need it or not, is a different proposi-

tion. The social worker also said that she believed, after a careful survey of a good many places, that Colorado Springs was meeting the problem that was thrust upon it better than any other western place, or any other place that was considered as a health resort. We might take that and consider it with a certain amount of pride, but I hardly think so, because I think Colorado Springs and Denver, so far as I can see them, are in much better position to meet this problem properly than any other of the so-called health resorts, and I think if you will think it over for a moment you will agree with that statement. The tuberculosis problem in Colorado is a problem, as I said, that is ours. It came to us without asking, and whether we are going to consider it as an opportunity in research, and in furthering anti-tuberculosis work is something that we will have to decide.

People with tuberculosis have always come to Colorado, at least since Colorado was settled at all, and they will continue to come in spite of a considerable amount of propaganda to keep them at home. The propaganda has not been successful. They are still coming, and the question is, "How are we going to meet the problem?" Not by pushing it aside, not by saying that we have outgrown that sort of thing in Colorado at all, because we have not, but we must meet it, and I feel that Dr. Corper has brought to our attention today, a point in relation to research, that is certainly worthy of our consideration. We have done much, we must do more, not only in the matter of research, but in many other lines connected with this situation.

Dr. C. E. Harris, Woodmen, Colo.: I find it hard to quarrel very much with Dr. Corper on this very clear paper. I think there is one point which needs to be brought out which has a practical bearing. It does not disprove his paper, but it simply goes a step further to prove his contention that we have a great need, a very practical need, for research work. Now, I think whether we like it or not, we have got to face this very practical conclusion, and that is that in each passing year there will be less of a tendency for tuberculosis patients to come here. It cannot be otherwise; I do not see any other conclusion that any sane man can reach in the natural course of events. We have first the movement which Dr. Giese referred to, and which is very definite, the anti-climatic propaganda. There is no blinking at the fact that it does exist. And we have again the very evident fact that the general mortality from tuberculosis is declining every year. Of course, the population of the country has increased in the meanwhile, but inevitably there must be fewer and fewer cases pro rata of tuberculosis in this country. Again, we have the unmistakable increase in state, county and municipal sanatoria and free tubercular dispensaries all over the country. The South, which has been particularly backward, is now coming into that phase of the question, and climate or no climate, wealth, or not, there are a lot of people who are not going to go five hundred, a thousand or two thousand miles away from home to get institutional treatment when they can get that treatment at home. That does not undermine Dr. Corper's contention for the need of research work in this community, in this state, but rather it strengthens that contention, because if we are going to hold "our place in the sun," then frankly we must achieve something in this state which is going to offset this very definite, practical and economic tendency that is working against us.

AUTOPSY EXAMINATION—AN INDEX OF PROFESSIONAL EFFICIENCY*

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I feel confident in the assumption that every physician who attends a medical meeting and is a member of a medical association is interested in scientific medicine. Those who are here today are more than ordinarily interested in the scientific side of the profession, for you have left your practice upon which your financial support depends, to attend meetings which will yield you no immediate returns. To you, with your manifest interest and devotion to the scientific aspects of medicine, any method that ensures greater accuracy in the study and diagnosis of disease is welcome.

The importance of post-mortem examination as a check on antemortem diagnosis has been repeatedly called to the attention of every society. A certain immunity against the power of this appeal has been built up in the minds of many, and even a defense reaction produced in those who would excuse their own shortcomings. It is not my purpose to theorize as to the value of this procedure, but to present some of its practical applications to every-day medical practice. I have not come as a laboratory man to tell you clinicians what you should do. I am primarily a clinician myself, having spent several of the best years of my life in the actual care of patients from the medical and surgical points of view. I have encountered the same difficulties which you have met, and this makes me more sympathetic with the physician who feels called upon to ask for an autopsy. My remarks, then, are primarily from the same point of view as yours.

Upon my recent arrival at the University of Colorado, School of Medicine, I found in use in the hospital a form for autopsy permission which conveys clearly the attitude which we may well take toward this matter. The following sentence appears in this permit which is to be signed by the nearest rela-

tive of the deceased. "I understand that the physicians in charge are not entirely clear as to the actual cause of death, and hereby give my consent to such post-mortem investigation as will assist in designating the correct cause of death for death certificate purposes." This is a tacit admission on our part that medical science, as at present developed, is not all-knowing, and that our methods of diagnosis are not infallible. Comparison of the clinical and the anatomical diagnosis on even a small series of autopsied cases will convince one that our interpretation of symptoms is often fallacious, and that many conditions are as yet beyond our methods of recognition.

An unfortunate attitude has sprung up in certain quarters leading to the belief that it is the chief function of a pathologist to "show up" the clinician's mistakes. This inevitably leads to a "holier than thou" attitude on the part of the one, and a spirit of resentment on the part of the other. There is no excuse for the former attitude, while the latter is a natural sequence. On the contrary, autopsy revelations are conducive to great humility, making us more keenly sensible of the short-comings of our methods of diagnosis and the mental processes which caused the mistakes. They should create within us a determination that we will individually add our bit to the correction of these failures in our own practice and add, if possible, some new method of avoiding them in the future. This, in short, is the real scientific method in medicine comparable to that in the practice of the physico-chemical and the biological sciences which has led to their rapid development in the past.

Our present knowledge of morbid anatomy has been founded largely upon post-mortem examinations made by enthusiastic physicians in the past decades. Many of these were made in the face of difficulties which are practically unknown today. The

*Read before the Arkansas Valley Medical Society, Rocky Ford, Colorado, December 12, 1925.

impetus of their example should not be allowed to die out because of our indifference. It is becoming less and less difficult to secure autopsy permits, largely because of the education of the public in such matters. A physician who can and is anxious to do an autopsy is looked upon by a great many of the laity as one who is likely to be abreast of the times, and hence worthy of further trust and confidence. The public respects a man who employs urine, blood, sputum, and metabolism tests, and is coming to look with less favor upon any one who is unable to make proper use of these methods. The day is coming, and is not far off, when a doctor who cannot make a proper post-mortem examination will be considered a back number. The requests coming from relatives and friends of the deceased for a post-mortem examination are on the increase, especially in those localities where the physicians themselves believe in their value. In last analysis, the attitude of the public is being moulded by the attitude of the physicians.

It is no exaggeration to say that contributions, some of real value, are being made to medical science in our generation by means of autopsies. The story is told that during such an autopsy some years ago, Opie¹ found a gall stone impacted in the ampulla of Vater. In this particular individual the common and the pancreatic duct joined a short distance above the usual opening. Fat necrosis was observed in the pancreas. The cause of this condition had previously been a mystery. The thought occurred to him that possibly bile had found its way into the pancreatic duct, and that this was the cause of pancreatic necrosis which allowed the escape of the enzymes into the tissues. The following night was spent in research on dogs and by the next morning the proof had been secured.

Within the past month a little incident occurred in our own practice which throws definite light upon a problem of considerable importance. During an autopsy the various vessels were found to contain a whitish, pasty material and numerous drops of yellow oil. For a time this was the

source of some uncertainty until it was recalled that Dr. David Elliott, one of our colleagues, had used the body, previous to autopsy, for the study of caudal anesthesia. A mixture of bismuth in olive oil had been injected into the spinal canal in the sacral region, and x-ray pictures taken of its progress upward. Evidently some of it had escaped and found its way into the circulatory system. This furnished an adequate explanation for certain cases of fatality observed in caudal anesthesia which have been reported by Thompson², and of certain serious poisonings reported by Elliott,³ *et al.*

Early observers were bothered by the fact that in the dead body the arteries were found empty. The idea gradually grew that the musculature of the arteries contracted after death driving the blood into the veins and capillaries which have more yielding walls. That anything more than this takes place is not universally recognized.

In the present case death took place at 9:00 a. m. and the injection was done just before noon. The autopsy was begun at 1:00 p. m. The bismuth mixture was found widely distributed over the body, in fact in every vessel opened. It reached the finer vessels of the kidney, outlining beautifully the capsular circulation. The original injection had been made into the sub-arachnoid space about the filum terminale, but had penetrated the venous plexus which is abundant in this region. The last x-ray picture shows this very clearly. Evidently, then, something more than mere expulsion of blood from arteries to veins must take place, and this is not confined to the period immediately following death, but is a universal process affecting all vessels even as late as 3 hours after death. Combemale⁴ has recently called attention to this phenomenon as it occurs in frogs under experimental conditions. He and Wertheimer⁵ had previously performed experiments on frogs in which the heart had been arrested with drugs, and found that spasmodic contractions occurred which persisted for a considerable length of time. Hooker⁶ had found in cats that the capillaries and the veins had a distinct function in propelling blood from the tissues to

the heart, and that this also persisted for a time after the heart stopped beating. This observation is apparently the first in which a similar action has been shown to occur in man, and is of considerable significance in explaining the wide-spread dissemination of bacteria after death. This is doubtless what is meant by the so-called agonal invasion of bacteria, which has been assumed to occur during the last few minutes of life. It is, therefore, more probably a post-mortem phenomenon than one which occurs ante-mortem.

Medical history contains many instances of autopsy observations by practitioners which have contributed greatly to the advance of medical science. In 1761 Morgagni published his epoch-making work entitled, "The Seats and Causes of Disease Investigated by Anatomy." This dispelled the mystery and uncertainty surrounding many now well-known diseases, and ever since medicine has been on a surer footing. Autopsies were done long before this period and the account of some of them is extremely interesting. The first post-mortem examination done in the New World was said to have been performed in 1533. (Chavarria and Shipley)⁷. This was done on a pair of Siamese twins born in Santo Domingo and was for the purpose of studying the seat of the soul. There was uncertainty as to whether to baptize this combination as one individual or two. They had separate bodies with the exception of the liver, cord and the associated circulation. By elimination of these structures from consideration it was hoped to determine this point which at the time seemed of vital importance. No decision was reached.

Steiner⁸ related the stories of some early autopsies, one of which was to determine whether a child had been bewitched. The relaxation of the muscles after rigor mortis had disappeared was not understood, and was believed in this case to indicate that the child had been bewitched by an old woman living in the vicinity. She was compelled to flee for her life. These narratives make us realize what we have escaped by living in the present instead of the past, a state of

affairs brought about by steady advance in medical knowledge, the direct result of observation of the bodies of the dead.

We hear much about the autopsy percentage of the different hospitals and the value of this service to internes and the attending staff. Those with the highest percentage are sought after as suitable places to take an internship, and the inference is carried even farther, that the attending staff of that with the highest average is the most progressive. No one raises an objection to this line of reasoning. The greatest diagnosticians of this and the past generations have been those who spent years studying their fatalities at the autopsy table. Name any great medical contributor to our science, and you will find that he was thoroughly familiar with post-mortem pathology. Think of all the poor physicians and unreliable diagnosticians of your acquaintance and I venture that not one of them knows more than the barest rudiments of pathology, and never makes an effort to secure or to attend an autopsy. The inference is obvious. It becomes, then, a personal matter with each physician who has ambition in the field of medicine.

Waite⁹ has written an interesting account of what a small group of physicians has accomplished by what he calls "Home Post-graduate Work by Means of Post-mortem Examinations." These men banded themselves together into an informal society, which sought to secure as many autopsies as possible. The work was so divided that it was not burdensome to any one, and to their surprise within 5 months they had done more than 100 examinations. They hold weekly meetings and discuss the cases, study them from all angles and preserve interesting specimens to report to their local societies. The success has been far beyond their fondest hopes. What they did, others can do.

Numerous current articles on post-mortem examinations present the matter in such a way that practically every physician should be convinced of the advisability of securing autopsies, and is provided with various arguments by which to secure them. The re-

ligious aspect has been ably treated by Frank¹⁰ who pleads with those in authority to change a decree more or less affecting Orthodox Jews, which was issued by the Rabbis of the Talmud before the fall of Rome. This was a "man-made decision" and in his judgment must be set aside. Blue-stone,¹¹ also a superintendent of a prominent Jewish hospital, goes still further in asserting that he has been assured by rabbis and priests that there is nothing essential in either the Jewish or the Catholic faith which forbids autopsies. Most of the objections are on other than religious grounds. These have been commented upon by various writers, as Wilson,^{12, 13} Sturgis,¹⁴ Robertson,¹⁵ Castelow,¹⁶ and many others.

America is recognized as the paradise of quacks and charlatans. This, in short, is a reflection of the fact that the average physician does not make a high average of accurate diagnoses and hence reduces his chances of effecting a cure. Dissatisfaction with the lack of improvement drives the patient to another physician who perhaps makes an entirely different diagnosis and institutes other treatment. Obscure cases thus pass from the hands of one practitioner to another until in desperation they fall a prey to the advertising "specialist" with his glaring promise of certain cure. These conditions make admirable soil upon which Christian Science, Abramism, chiropractic and the other cults thrive. In Germany, on the other hand, no such quackery exists, as autopsy permission allows frequent check upon diagnosis, thus raising the "batting average" of the general practitioner. Knowledge and quackery are mutually incompatible, hence with the rise of one of the other automatically disappears. Autopsy control of clinical diagnosis is the **only** method available which will remedy the situation.

The education of the public is surely coming and with it will be a popular demand for more information as to the weaknesses of one's own family, and of the accurate cause of death. Not more than 2 per cent of all deaths in the United States are submitted to autopsy. When we recall that

fully 10 per cent of all aged people die with undiagnosed cancer, we can readily appreciate the futility of our present system of recording vital statistics. Wells¹⁷ has shown conclusively that our present statistics relating to cancer are wholly inadequate. In almost every disease the same holds true. Oertel¹⁸ quotes Professor Bashford, Director of the Imperial Cancer Institute of London, as saying that our statistics are not as good nor as reliable as those of Ceylon. The findings of Cabot¹⁹ in his study of 3,000 autopsies in comparison with the clinical diagnoses, is familiar to everyone. If these conditions are present among those who represent the better diagnosticians, what must be true of those who never check their own clinical diagnoses with post-mortem examinations. The same mistakes are made over and over again with no way to correct them. A sense of positiveness comes with this lack of autocorrection until no one is so certain of a diagnosis as he who never sees an autopsy. There is a strange psychology that goes with this situation, one in which the element of self-delusion is predominant. He who needs autopsy control the most, is the one who realizes it the least.

The practical conclusion is, what can we do about it, and what will we individually determine to do to remedy the situation. We read much about the competition existing between hospitals by which the success of one spurs the rest to greater efforts. Why not the same friendly rivalry between medical societies? Why not determine to collect autopsy statistics from each member of this society at its meeting a year from now and publish the results, showing what a group of determined and sincere men can do to advance our science. If you will initiate and push this plan through, I feel sure it will not only produce great results in your own practice, but will stimulate other individuals and other societies to adopt a means of greatly increasing their professional efficiency.

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EARLY EXAMINATION OF WATER SUPPLY IN COLORADO*

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One of the most important functions of a Board of Health is the investigation of the water supply or supplies used by individuals or a community for domestic purposes, the object of the investigation being to correct any factors of sanitary error which may be discovered.

In the wisely ruled events of her kingdom, Nature has made it possible, as it were, for cycles to be established in the perpetuation of her various phenomena. Thus, it is well known that the animal world is dependent for its existence on plant life, and it has created no surprise that generation after generation of endless species of animals have propagated themselves through all the centuries at the expense of growing vegetation. But what of vegetation itself? Since plants are referred to the soil for all but one of the elements on which they subsist, had not the generous lap of Mother Nature been long since exhausted of these elements? This, without doubt, would have been the case were it not that Nature causes those elements which are so inextricably bound up in the dead bodies of

plants and animals to be reduced to their simpler elements and incorporated in the soil, so that in their turn they may be used anew in the upbuilding of plant life.

Bacteria are not only the indispensable agents, but are the only agents which make possible this alternate cycle of food assimilation, first by animals and then by plants in endless repetition.

Nature's great method of purifying water is likewise of a cyclic nature.

All of the waters of the earth's surface that are exposed to the heat rays of the sun, are caused to evaporate to a greater or less degree. One hundred eighty-six thousand two hundred and forty cubic miles of water are estimated to be evaporated annually in this manner. This evaporated moisture coming in contact with the cold high atmosphere or blasts from the colder zones is precipitated as rain.

In fact, as we are taught in physics, the water of the earth may be compared to an immense boiler (about 145,000,000 square miles, or three-fourths of the surface of the earth being water), the radiant rays of the sun to the heat of a furnace, and the atmosphere to a still. Thus, in continual cycles, a beneficent nature is showering us

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with purified water. Unfortunately, this purified water is contaminated almost as soon as it comes in contact with the habitation of man or animals.

The storage of water in ponds, lakes, reservoirs and dams, and the so-called "self-purification" of waters in running streams, are uncertain and unreliable methods of purification. Next to rain water, nature's greatest ally is the biologic and physical action of the air and the soil of the earth's surface in prolonged contact with water, thus reducing the organic contents and destroying to a greater or less degree the living matter present.

In the year 1896, when the writer came to Denver, the typhoid death rate in the city of Denver was about 58 per 100,000, and had been very much higher than that. There was practically no bacteriological purification of the water supply—the so-called mechanical filters being entirely inadequate, as repeated bacteriological tests conclusively showed. The writer was engaged by the city of Denver to examine the Denver water supply, and systematic examinations were made almost daily for several years. When one considers the watersheds from which the most of the water supply of Denver was drawn, they can be likened to the sides of irregular funnels, with a scant amount of soil on a rocky bottom, which facilitated the flow of water to the bottom of the funnel and incidentally causes a concentration of any contamination on the watershed.

In 1903, the Denver Union Water Company adopted the slow sand method of filtration, a policy which was frequently and urgently suggested by the writer to the late Walter Scott Cheesman, president of the company. To the improvement in slow sand filtration was added the use of copper sulphate solution to destroy algae and other fungi. Later, the water was treated with calcium hypochlorite; still later by liquid chlorine. Each of these sanitary improvements resulted in a consistent lowering of the typhoid death rate, until today, Denver has a typhoid death rate averaging in the past six years between 4 and 6 per 100,000.

As most interesting expositions of the

manner in which epidemics of typhoid fever originate, I will quote briefly two epidemics which were investigated by me for the State Board of Health, in the early days of this work.

In the year 1900, an epidemic of typhoid fever of considerable magnitude occurred in Fort Collins. At that time, Fort Collins had a population of approximately 7,000. A few cases of typhoid had occurred from time to time during the year, as occurred also in other communities of Colorado, when suddenly, about the end of November, 1900, case after case of typhoid occurred in Fort Collins, until an estimated number of 200 cases of typhoid were reported, all occurring in the space of from two to three weeks.

An investigation of the watershed of the Cache la Poudre river showed the same to be open and free to any and all contamination which either the permanent residents or passing tourists or campers might see fit to deposit in the stream or on the banks. While the ordinary run of such pollution might account for the occasional cases of typhoid fever, it would take something definite to account for the epidemic.

A close scrutiny of the watershed revealed that in the little town of Bellvue, about two miles above the intake of the Fort Collins water supply, there had been five undoubted cases of typhoid fever. It was learned that in one of these cases, the doctor in charge gave orders that the discharges be disinfected with chloride of lime and buried. Instead of complying with these orders, the discharges were emptied into a little ditch which flowed past the house, so that they might be carried away. This little house ditch flowed into a larger ditch, and after running about one-eighth of a mile, joined the Poudre, as above stated, two miles from the intake of the city water supply. Thus, we have definite knowledge of typhoid stools emptying into the city supply on the third of November. The epidemic began November 19th, 1900, and continued with two hundred cases coming down in rapid succession.

The writer has personal knowledge of tourists staying but a day or two in Fort Collins and coming down with typhoid in a

week or two after leaving the city. Of course they drank the city water while there.

The manner of typhoid spread in the case of Fort Collins, might be called the "classic" method.

Many other epidemics of similar nature were investigated in the state and an exacting survey of conditions on the watershed revealed without exception, the relation between deposited typhoid infection and its conveyal to the populace by water. An epidemic occurring at Leadville in the latter part of the year 1903, while it was conveyed by water as usual, yet the method of its conveyal occurred in an entirely different manner. A conservative estimate of the number of cases of typhoid was five hundred.

A most careful and painstaking examination of the various watersheds in and around Leadville, failed to reveal a single case of sickness of any kind. The sheds were also free of animal corrals, cesspools, etc.

The repeated examination of the water, both chemical and bacteriological, showed it to be of exceptional purity. The dairies were carefully inspected and no blame could be placed on them. We had the anomalous condition of pure water and pure milk and sanitarily correct watersheds—oysters, fresh vegetables and flies could also be excluded—and yet on the other hand, case after case of typhoid fever, occurring in such numbers that one was inevitably led to the conclusion that only a common vehicle could be the carrier of the contagion to so many people at one time, and that that vehicle was water.

In making a plot of the houses and streets where the cases of typhoid occurred, I was struck by the fact that certain blocks and streets were practically free from typhoid, while other blocks or streets would be filled with cases of sickness. Later, it was learned from Mr. West, superintendent of the Leadville Water Company, that the water mains of the city very frequently cracked and broke, due to the tunnels and stopes of the various mines running under the city. In the winter months, scarcely a week went by without repairs being made to these mains.

It was found that there were cases of typhoid fever in St. Vincent's Hospital, on a very high point of ground. The discharges from these cases went into a cesspool and from there, seeping their course downward through the town and toward the Arkansas river, unquestionably flowed along the outside of the water mains of the city. As long as pressure was on the mains, all was well, but when the pipes were drained to make the necessary repairs, this sewage was sucked into the pipes. From there it ran directly into the faucets of the houses when the pressure was turned on again.

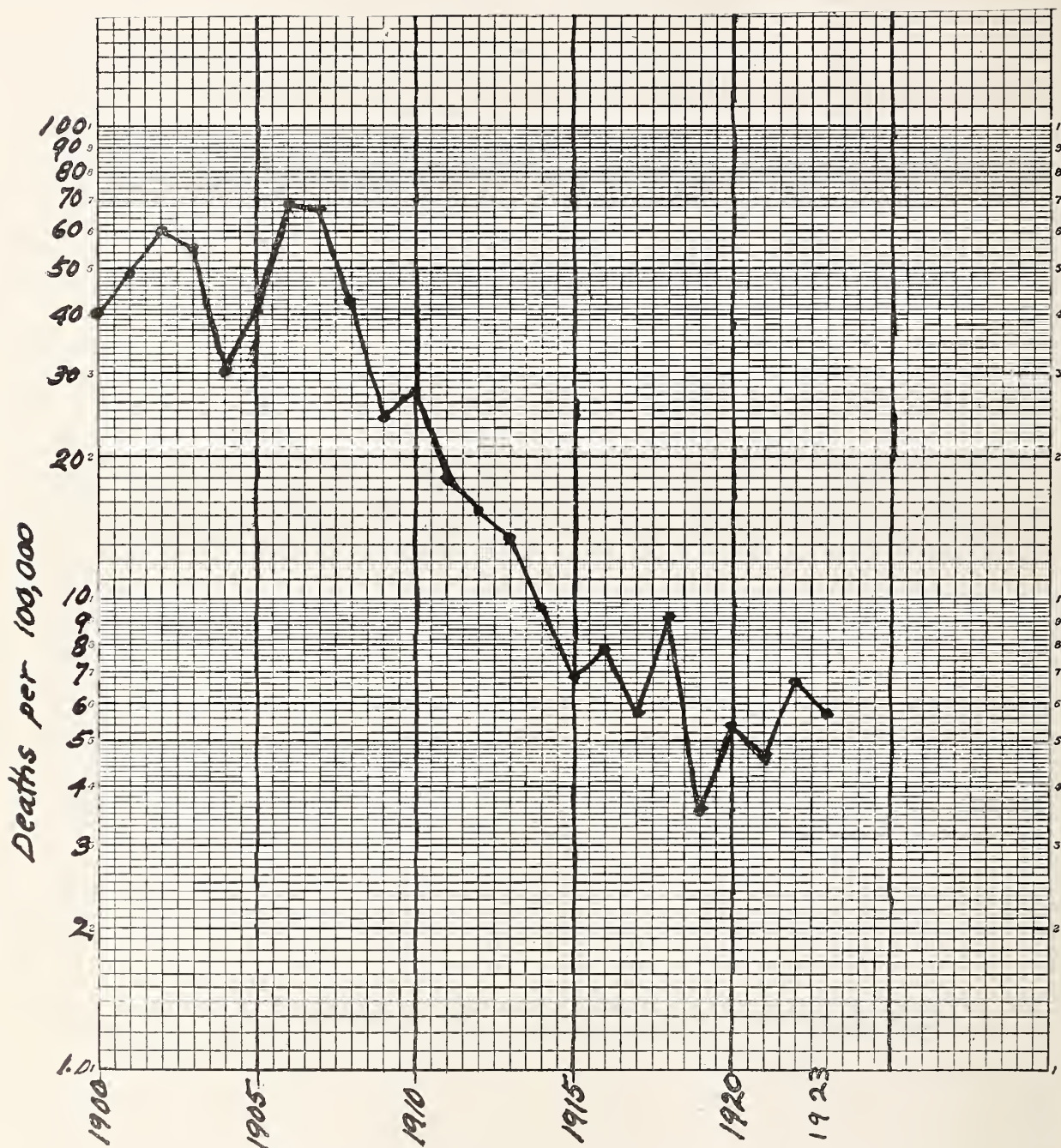
In the vast majority of cases, the areas where the typhoid occurred corresponded to the points at which the mains were drained and repaired. Other cases of typhoid can be accounted for by the carrying of the typhoid poison a long distance in the mains or by an infection of other mains under similar conditions, or by the fact that people may live in one section of the city and drink water in another section, as is often the case. The time also corresponded—there were at least three cases of typhoid in the hospital in the middle and latter part of November, and the cases of typhoid appeared in epidemic proportion the first week in December.

Disinfection of the stools and cesspools and the correction of the sewerage system promptly abated the epidemic.

In all of the epidemics studied for the State Board of Health, while a bacteriologic examination was always made and generally a chemical one, in no single instance could the origin of the epidemic have been traced **without a sanitary inspection**. This is the indispensable factor in such investigations, and will continue to be so until we have a reliable method of detecting the typhoid bacillus in water.

From time to time in communities supplied with pure drinking water, sporadic or limited epidemics of typhoid fever will occur, and these can usually be traced to a certain milk supply, but it should be remembered that even here contaminated water, as a rule, is at fault.

It was extremely difficult, even so recently as twenty-five years ago, to make the



laity believe that typhoid fever was conveyed by water, and, indeed, the medical profession was not always a unity on the subject. Opposition was often encountered in an attempt to obtain new water supplies or to better those already existing.

Fortunately, this opposition has practically vanished and in the onward march of progress, sanitary science has scored another victory.

Herewith is appended a graph of typhoid fever death rate in Denver for twenty-three years.

Slow sand filters placed in operation in 1903.

Hypochlorite introduced in 1911.

Liquid chlorine in 1916.

Accompanying chart made by Mr. Dana Kepner, sanitary engineer for State Board of Health.

Improved method of handling milk, together with supervision of the water supplies of dairies, has also played a small part in the improved typhoid death rate—as has likewise the supervision of the oyster supply and the irrigation of vegetables eaten raw. Flies, we still have with us, although the substitution of the gasoline station for the old fashioned barn is also a factor in modern sanitation.

PSYCHOPATHOLOGY—SLEEP

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Relatively little is known of sleep. It appears to be a biological reaction that is essential to nearly all animals as an antidote for fatigue and exhaustion. Many animals (rabbits, owls, etc.), sleep by day and feed and are active at night. Some animals sleep at irregular times. Some are active during summer and hibernate or sleep several months during winter—all this in addition to their sleep when not hibernating.

In man the amount of sleep varies greatly depending on many factors. In infancy and early childhood more sleep is needed than in adulthood. Again old age needs more sleep. Sleep varies somewhat with the amount of energy expended and varies much from person to person. Some people do well on 4-5 hours of sleep each 24 hours. Others must have 8-9 hours. It is a prevalent opinion that Thomas Edison has for many years slept only a few hours daily. The kinds of sleep vary greatly. Some people sleep lightly, are easily aroused by slight noises but fall asleep as readily. Others sleep deeply but once awakened fall asleep with difficulty. Some people, like rabbits, prefer to be up until the wee hours of the morning. These people do not arise until late in the morning and often are irritable on arising. There are those who are "early to bed and early to rise." Dreams are common and books have been written on the cause and interpretation of them. Some people have been known to keep themselves awake rather than experience the terrorizing dreams to which they were subject. There are people who really sleep very little but rest in the quiet of the night. To others sleeplessness is a most disagreeable ordeal.

Some of the more profound disturbances of sleep are seen in epidemic encephalitis (sometimes called sleeping sickness). In this disease of the brain the patient may be sleepless, delirious, or sleep soundly for days or weeks. There is a disease in Africa caused by an infection of the blood from the bite of the tsetse fly which is characterized by

stupor and sleep. In certain cases of mental disease (catatonia) the patient may be in a stupor for weeks, months or years and require to be fed through a tube passed through the nose to the stomach. These are sometimes spoken of as trances. In other mental diseases (mania) the patients are so active and sleep so little that exhaustion may ensue. In still other mental diseases (hysteria, epilepsy) patients may walk or talk in their sleep and on awakening be completely oblivious of what they have done. There are a limited number of cases on record of a peculiar malady called narcolepsy in which the patient will have attacks of sleeping. They will fall asleep while driving an automobile or while at work only to awaken in five minutes to an hour apparently completely refreshed. In certain tumors or diseases of the brain drowsiness or somnolence may be a prominent symptom. Sleep may be mistaken for coma which according to Cabot¹ may be present in alcoholism, syncope, apoplexy, post-epileptic exhaustion, uremia, meningitis, dementia paralytica, brain tumors and from an overdose of morphine or other sedative drugs.

It is an arbitrary matter to say what is pathologic sleep and what is within bounds of normal. If the quantity or quality of sleep interfere with the efficiency or recuperation of the person, disease may be impending or present. It is presumed, of course, that adequate facilities or conditions for sleep are available.

¹Cabot—Differential Diagnosis.

A Warning to Rabbits

New Haven, Conn., Dec. 28.—Cigarette smoke is "bad medicine" for the young, at least for young rabbits, according to results of experiments by Prof. W. J. Baumgartner of the University of Kansas, stated in a paper presented here today before the meeting of the American Society of Zoologists.

"The smoked rabbits", reports Prof. Baumgartner, "always showed signs of stupor, and sometimes paroxysms during and immediately after the administration of the smoke."

"Weekly weighings showed that the smoked rabbits failed to gain in weight as rapidly as the normals. Smoked rabbits neglected markedly to care for their fur and presented an unkempt, dirty appearance. The smoked individuals were lethargic and inactive, playing, digging or fighting but little as compared with the normals. Sexual activity was evidenced from two to three weeks later."—Science Service.

SYSTOLE

Only two classes of men never change: The wisest of the wise and the dullest of the dull.—Confucius.

Be square without being angular. Be honest without being mean. Be upright without being punctilious. Be brilliant without being showy.—Chinese Proverb.

He who freely magnifies what hath been nobly done, and fears not to declare as freely what might be done better, gives ye the best covenant of his fidelity.—John Milton.

No man lives without jostling and being jostled: in all ways he has to elbow himself through the world, giving and receiving—Carlyle.

Be glad of life because it gives you the chance to work and to play and to look up at the stars.—Van Dyke.

Life is a fragment, a moment between two eternities, influenced by all that has preceded, and to influence all that follows. The only way to illuminate it is by extent of view.—Channing.

Genius is mainly an affair of energy, and poetry is mainly an affair of genius: therefore a nation characterized by energy may well be eminent in poetry.—Arnold.

The happiness of a man in this life does not consist in the absence but in the mastery of his passions.—Tennyson.

The cynic is one who knows the price of everything and the value of nothing.—Oscar Wilde.

The tallest and smallest among us are so alike diminutive and pitifully base, it is a meanness to calculate the difference.—Thackeray.

Laws are made for the good.—Socrates.

DIASTOLE

Hopeless

“Hey, Diogenes! What’s your hurry?”
“Still looking for a double meaning joke with both meanings decent.”—Exchange.

Friends There Too

A novel anniversary party, in commemoration of her operation one year ago, was held Saturday evening by Mrs. H. The guests included the operating surgeon, Dr. M., and his wife, hospital nurses, internes, and a number of friends.—Denver Post.

Only Skin Deep

The waiting room of a young Denver physician was occupied by a group of coughing patients, each impatiently awaiting his turn. An observing newcomer broke the monotony with the wise remark, “There seems to be quite a hypodermic of colds now.”

Modernism

Maiden Aunt: “I understood that Heaven has just sent you a baby sister.”

Flapper: “For Gawd’s sake, aunt, come around to the sex hygiene class with me tomorrow.”—Exchange.

Dear Doctor: To submit to vaccination or any of the medical beliefs of savagery I would be going against my higher sense of duty. Medical science is spurious in its philosophy, dealing entirely with external appearances and preconceived ideas and man’s bondage to them. Its knowledge is the sum of all that is untrue about the “Truth of man that God created.”

Certificate of Smallpox

Our records show that in June of 1921 we received a call from you for spiritual help and ministry for your children who, to mortal sense, were under the claim of smallpox. Our spiritual help was gladly given and through the power of Christ the children restored to their divine birthright of health and holiness.

NEWS NOTES

Dr. G. L. Monson returned home on Sunday from a three weeks' visit in the east.

Dr. and Mrs. J. N. Hall left the first of March for a cruise of the West Indies.

Dr. and Mrs. Charles B. Lyman have left for a trip to Rome. They will return some time in June.

Dr. and Mrs. Philip Work left March 11th for Washington, D. C., where they attended the dinner which Dr. Hubert Work, secretary of the interior, gave March 16th for President and Mrs. Coolidge. Before returning to Denver, Dr. and Mrs. Work will visit in New Orleans, Houston, Texas, and other southern cities. They plan to be absent two or three weeks.

Ruth Dennis, daughter of Dr. and Mrs. Wilfred S. Dennis, died at the home of her parents March 11, 1926.

Dr. Helen F. Craig (Mrs. James J. Sullivan), who has been a member of the staff of St. Joseph's hospital for many years, has resigned her position there as pathologist and on March 1 left the institution to become just plain Mrs. Sullivan.

Dr. B. A. Filmer left Sunday evening for San Francisco. He will spend several weeks visiting Pacific coast cities.

Dr. T. J. Carlin returned February 14th from a six weeks' visit in California.

Dr. and Mrs. W. Bernard Yegge left February 12th for Rochester, Minn. Later they went on to Detroit and returned to Denver the first of March.

Dr. Ralph Cable Collins of Trinidad, Colo., has arrived in Constantinople. He is to make a health survey of Turkey on behalf of the Rockefeller foundation. He also plans to send a group of Turkish doctors and nurses to the United States to study American methods of hygiene, with the purpose of establishing a modern health department in Turkey.

On February 25, Dr. Evald Olson, treasurer of the Wyoming State Medical Society was suddenly stricken with intestinal obstruction. Dr. Olson lives at Lovell, Wyoming, in the Big Horn Basin.

Dr. W. W. Horsley was called and he together with Dr. F. A. Mills decided an immediate operation was necessary.

On account of the lack of railroad facilities it was necessary to move Dr. Olson via auto, to Powell. About everything happened that could to delay the car but on arrival at Powell the doctor was operated by Dr. Whitlock and is now on the road to recovery.

The members of the State Society extend to the doctor their best wishes for a speedy recovery.

Dr. and Mrs. Robert Packard are the parents of a son born March 7th at St. Luke's hospital. He will be named Robert Packard, Jr.

Dr. and Mrs. John Marshall Lipscomb are the parents of a daughter born March 7th at Mercy hospital.

In our wild search for news notes in the March issue we made the mistake of announcing that Dr. Cuthbert Powell was in California. Dr. Powell is in Denver and has had no thought of going to California, Florida or any other haunts of the idle rich.

Dr. Paul R. Holtz of the Staff of the Wheatland General Hospital is on a month's leave of absence, visiting clinics in Rochester, Minn., and in Baltimore.

Dr. O. S. Pavy, for some years resident physician for the Ohio Oil Company at McFadden, Wyoming, is spending a few weeks at the Wheatland General Hospital, Wheatland, attending clinics and observing the methods in use at the hospital.

Dr. Fred W. Phifer, Chief-of-Staff of the Wheatland General Hospital, has been appointed Wyoming State Chairman of the National Hospital Day Committee for 1926. The other appointees on the committee are Miss C. C. Shields, R. N., Supt. of the Wyoming General Hospital at Rock Springs, and Mrs. Isabel Nelson, R. N., of Casper.

Sir Archibold Garrod, Regius Professor of Medicine in the University of Oxford, recently wrote Dr. James T. Elliot of Denver concerning a case of congenital porphyria which he says was recently under observation in Denver. The physician having had such a case would be rendering a service to communicate with Dr. Elliot or the Editor.

Dr. and Mrs. H. L. Whitaker recently left Denver for a trip to Honolulu. They will return to Denver about April 1st.

PAPERS WANTED

The most instructive and interesting program that the Wyoming State Medical Society has ever presented to its members is now in the making. We have some of the leading men throughout the United States on this year's program, but we want more papers by our own members!

The committee on Scientific Work of the Wyoming State Medical Society invites the members of the Society to prepare and read at the Lander meeting July 12 and 13, papers of interest to the Society.

But that there may be no duplicating of subjects the committee suggest that the titles of such papers be in the committee's hands as soon as possible. We cannot promise that every paper will be given space, but every writer is urged to get in touch with some member of the committee during the month of April.

Simply because you do not have at hand a medical library to look up all former articles do not let this condition interfere with your desire to present some subject which is of interest to you, because that certainly means it will be of interest to many of the rest of us. It's your duty to the other fellow who in turn may by his discussion of your problems help you to be a better doctor.

The committee this year consists of Dr. E. M. Turner, Laramie; Dr. J. L. Linn, Lander and Dr. Earl Whedon, Secretary, Sheridan.

E. W.

ERRATA

The following corrections are indicated in the article by Dr. Robert M. Lukens, "Bronchoscopy as an Aid in the Diagnosis and Treatment of Suppurative Diseases of the Lung" which appeared in the March issue of Colorado Medicine.

On page 81 W. V. Mullin should read W. V. Mullin.

On page 82 T. E. Carmondy should read T. E. Carmody. H. J. Corper should read C. E. Cooper.

MEDICAL SOCIETIES

MORGAN COUNTY

The Morgan County Medical Society met March 8th, at 8:00 p. m., in the office of Dr. A. F. Williams, Fort Morgan.

Dr. Sanford Withers of Denver addressed the members of the society. He showed lantern slides and read a paper on the treatment of malignant tumors by radium, also showed charts illustrating the effects of x-ray treatment in spleno-myelogenous leukemia. The various applicators used in treating tumors with radium were also shown.

The Morgan County Medical Society has a membership of 12 so far this year. The meetings have been well attended. Next meeting will be April 12th.

HARRY A. JOHNSON, Secy.

DELTA COUNTY

The regular monthly meeting of the Delta County Medical Society was held at Delta Friday night, February 26th dinner at the Delta House.

Present were Dr. Hick, president, presiding; Doctors Erich, Cleland, Miller, McArthur, Day, Hazlett, J. H. Burgin and Smith, members; Dr. Isom Burgin, visitor.

Mr. George W. Dyer of Cedaredge appeared before the Society and requested the co-operation of the Delta County Society with the Colorado Tuberculosis Association, which request was granted.

The scientific part of the session was taken up with the presentation of cases. Dr. Hazlett of Paonia presented for diagnosis a case with hip joint symptoms. The Clinical Heart being the subject for the evening, Dr. Hick presented two cases for examination and diagnosis; one of heart block and one of hyperthyroidism with principal symptoms referred to the heart.

Report of the By-Laws Committee. Moved by Dr. Miller and seconded by Dr. Cleland that The Delta County Society support the Colorado Tuberculosis Association, as requested, and that, as nearly as possible, the funds raised in the different districts be used at the discretion of the director of that locality.

Next meeting to be held in Delta. Papers by Drs. Cleland and Hazlett on Epidemic Jaundice.

HARRY A. SMITH, M.D.

Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY

The regular meeting of the Colorado Ophthalmological Society was held Saturday, January 23, 1926, in the assembly hall of the Medical Society of the City and County of Denver, Dr. William H. Crisp presiding.

Dr. L. Koeppe of Halle, Germany, read a paper on "The Importance of Einstein's Theory of Relativity and Gravitation for Physiology of the Eye," which will appear in the American Journal of Ophthalmology, 1926, v. 9, p. 000.

Dr. W. C. Bane presented the case of Mrs. E. G. V., aged 74, who complained of vision of the right eye failing. Central vision—poor. General field—manifestly good. An examination under mydriatic revealed large mutton fat whitish notched areas in and around the macula. One mass of white lobules, somewhat triangular in

shape, is located outward and below the disc. The retinal changes have evidently extended to the macula and are those of so-called retinitis circinata. The fellow eye is free from any plaques.

Dr. W. C. Bane showed the case of C. F., male, aged 75, tailor. Vision was: R. 4/60; L. 1/120. There were pigmented degenerative changes in the right macular region covering an area nearly a disc diameter in size. There were degenerative changes in the left macula and a large horseshoe shaped whitish plaque made up of lobules with an arrangement typical of retinitis circinata almost surrounding the macula. Vision with the right eye after correction was 5/10. The left eye did not improve with a lens.

Dr. W. C. Bane also presented a case with senile degenerative changes in the macula. These cases were discussed by Dr. L. Koeppe and Edward Jackson.

Dr. W. M. Bane demonstrated the staining of a rabbit's eye with fluorescein, after abrasions of the cornea and conjunctiva as seen with the Black-Shields ophthalmic lamp, using a red free filter. Discussed by Dr. L. Koeppe.

D. H. O'ROURKE, Secy.

COLORADO GENERAL HOSPITAL

By this time all the physicians in the state will have received an invitation to the first Clinic which the institution has held, and also a tentative program which indicates what the hospital staff wishes to present. Those in charge have wished to cover a broad field rather than to confine the clinics to a few specialties. In connection with the clinics will be interesting correlated laboratory demonstrations of practical value to the general practitioner, and not merely of academic or theoretical value. Responses to date indicate a large attendance, with a favorable response from all parts of the state.

The Superintendent's office has given out the following figures which cover the routine activities of the institution for the month of February. The hospital is now caring for, in numbers, close to the capacity of the four wards open. This is desirable and all indications point to the continuance of such attendance.

Patients in hospital February 1, 1926	88
Patients admitted during the month	130
(Newborn, included above)	9
Patients discharged during February	124
Patients dying in the hospital	10
Patients in the hospital March 1	84
Average number of hospital patients daily	88.5
Number of counties represented	18
Men admitted	38
Women admitted	56
Children admitted	36

Nine services are represented in the above. General Medicine leads in number, Ear, Nose and Throat, Pediatrics, General Surgery and Obstetrics follow in the order named. All the services work freely together, thereby obtaining the best possible care for the patient.

In the Out-Patient's Department the past month has been very busy, with a decided increase over recent past months. This is no doubt a seasonal fluctuation which has occurred at this time of year for several years past. There has been a daily attendance of 113, with 22 new patients. The Medical Clinic again leads in numbers with the Eye Clinic next.

E. R. Mugrage.

COLORADO PSYCHOPATHIC HOSPITAL

A year has passed since the opening of this institution and during that time it has proven its usefulness to the citizens of the state in more ways than one. In this period there has been a daily average of much better than one patient, with nearly as many discharged, which emphasizes again the relative short stay of the majority of the cases which enter.

The following figures obtained from the office of the Director show the normal degree of activity for this institution.

Patients in hospital February 1st, 1926	55
Patients admitted during the month	40
Patients discharged during the month	37
Patients dying during the month	2
Patients in the hospital March 1	56
Number of Counties represented	8

The Out-patient Department activities are also on a par with the past, there is apparently not the seasonal fluctuation which is so obvious in the same department of the Colorado General Hospital. Both these departments function together to the best advantage of both, which is of course ideal from the standpoint of the patient.

E. R. Mugrage.

Officers Otero County

R. S. Johnston, president, La Junta; C. E. Morse, vice president, La Junta; G. A. Ashbaugh, secretary-treasurer, Rocky Ford, Colo.

College students in the United States numbered 66,000 in 1889, and since that time they have increased 600 per cent.

BOOK REVIEWS

The Medical Clinics of North America. Volume IX, Number 11. New York Number, September, 1925. Octavo of 271 pages, with 24 illustrations. Per clinic year (July, 1925, to May, 1926): Paper, \$12.00; cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The first article in this number is on Chronic Arthritis and the Physio-therapy of Same, Nicholl's and Richardson's classification of the same is adopted: (1) proliferative arthritis, (2) degenerative arthritis. Electrotherapy, Hydrotherapy and Massage are evaluated.

A. F. Chase write on Alkalosis; symptoms, citation of cases, blood chemistry and treatment. An article on Pulmonary Syphilis will interest our phthisiologists. Dr. Robert Loeb, discussing Pericarditis, says: "Blunders resulting from an incomplete history or an incomplete physical examination or from inadequate laboratory investigation, are inexcusable."

Goodrich has an illuminating article on Chronic Nephritis and discusses the nomenclature of same.

Boas, Dr. Earnest P., doesn't have much faith in tonsillectomy in connection with rheumatic heart disease. (Note: read his article, and like the reviewer, you can agree or not, as you like).

There is a good article on the Run-down Patient; like the paper by Boas, we may not agree with all the author says, but I like this attitude: "to go the limit in etiologic procedure in hunting for some pathological cause."

I. W. Held has a long paper on Icterus and its Differential Diagnosis, to which a full bibliography is appended.

Dr. H. H. Fellows reports that in one series of 200 cases coming operation; in 183 a correct diagnosis was made. He says that by using all methods of diagnosis, ninety-five per cent should be correct.

All of the articles in this number are well worth careful perusal.

JAMES T. ELLIOTT.

A History of the Massachusetts Medical Society, with brief biographies of the founders and chief officers, 1781-1922, by Walter L. Burrage, A.M., M.D., Secretary of the Society, illustrated with views of some of the meeting places, reproductions of old documents and portraits of important officers. Privately printed, 1923.

The book contains biographies and portraits of many of the fathers of American Medicine. It should be extremely interesting for members in Colorado who hail from that neck of the woods and will prove entertaining to any one else who is at all fond of medical or medical institutional history.

The author has long been Secretary of the Massachusetts Medical Society and is therefore the man of all others to make such an exhaustive survey as the book discloses. It must have been a labor of love on his part since it bears the stamp of earnestness and interest.

F. B. STEPHENSON.

Manual of Psychiatry for the Medical Student and General Practitioner. By Paul E. Bowers, M.S., M.D., Examiner in Lunacy, State of California; Neuropsychiatrist, Los Angeles General Hospital; Lecturer in Neuropsychiatry, Post Graduate Medical School of the University of California, Los Angeles; Regional Consultant, United States Public Health Service. Philadelphia and London. W. B. Saunders & Company.

This book of 365 pages covers briefly, concisely and clearly, the entire subject of mental diseases. The classification used is that of the American Psychiatric Association.

In addition to the descriptions of the common psychoses which do not differ from those found in other works, there is a very good "Psychological Introduction"; chapters on "Psychoneuroses and Neuroses", "Psychoses with Constitutional Inferiority", "Psychoses with Mental Deficiency" and "Relationship of Insanity to Crime".

The work is well arranged. There are many good tables, good diagrams, and an index. It should be a valuable reference book for the general practitioner. The chief merit of this book is that it is well written and easy to read.

CYRUS L. PERSHING.

Rats

On Friday night Mr. Charles A. Holmquist, Director of the Division of Sanitation of the State Department of Health broadcast from Station WGY an interesting talk on the Eradication of Rats and Mice.

Following a brief discussion of the dangers to health caused by these rodents, Mr. Holmquist spoke of the enormous economic losses for which they are responsible—approximately two hundred million dollars each year in this country. He then described in detail several methods of getting rid of them—by poisons, by trapping and by making buildings rat-proof.—Science Service.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 21, 22, 23, 1926.

OFFICERS, 1925-1926

President, George A. Boyd, Colorado Springs.

President-elect, George H. Curfman, Salida.

Vice-Presidents, 1st, Edward Delehanty, Denver; 2nd, W. E. Hays, Sterling; 3rd, E. H. Munro, Grand Junction; 4th, L. E. Likes, Lamar.

Secretary, F. B. Stephenson, Denver.

Treasurer, W. A. Sedwick, Denver.

Delegates to the American Medical Association:

Senior, C. N. Meader, Denver, term expires 1926.

Alternate, B. B. Blotz, Rocky Ford, term expires 1926.

Junior, L. H. McKinnie, Colorado Springs, term expires 1927.

Alternate, W. T. Little, Canon City, term expires 1927.

Councilors:

Term expires

District 1. Ella A. Mead, Greeley.....1930

District 2. G. P. Lingenfelter, Denver.....1929

District 3. John R. Espey, Trinidad.....1928

District 4. W. W. Crook, Glenwood Springs.....1926

District 5. A. J. Nossaman, Pagosa Springs.....1927

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, H. H. Aldredge, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, H. A. Smith, Delta.

Denver County—First and third Tuesday of each month; secretary, L. V. Sams, Denver.

El Paso County—Second Wednesday of each month; Secy., J. B. Crouch, Colorado Springs.

Fremont County—Fourth Monday of each month; secretary, Edgar C. Webb, Canon City.

Garfield County—Last Thursday of each month; secretary, O. F. Clagett, Rifle, Colo.

Huerfano County—Third Thursday of each month; secretary, S. J. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, V. E. Cram, Fort Collins.

Las Animas County—First Friday of each month; secretary, W. L. Newburn, Trinidad.

Mesa County—First Tuesday of each month; secretary, E. H. Peterson, Grand Junction.

Montrose County—First Thursday of each month; secretary, C. G. Brethouwer, Montrose.

Morgan County—Time of meeting (not reported); secretary, Harry A. Johnson, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Guy Ashbaugh, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. F. Snedec, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, C. A. Ringle, Greeley.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. B. Crouch, chairman, Colorado Springs; E. D. Downing, Woodmen; Fred M. Heller, Pueblo.

Committee on Local Arrangements: J. H. Brown, chairman, Colorado Springs; C. S. Morrison, Colorado Springs; O. R. Gillett, Colorado Springs.

Committee on Credentials: F. B. Stephenson, chairman, Denver; Margaret Johnson, Boulder; Harry A. Johnson, Fort Morgan.

Committee on Public Policy: D. A. Strickler, chairman, Denver; Edward Jackson, Denver; Jean Gale, Denver; W. W. King, Denver; Crum Epler, Pueblo; C. A. Ringle, Greeley; O. M. Gilbert, Boulder.

Committee on Publication: T. E. Carmody, chairman, Denver (term expires 1926); W. H. Crisp, Denver (term expires 1927); C. S. Bluemel, Denver (term expires 1928).

Auditing Committee: G. W. Miel, chairman, Denver; J. J. Mahoney, Colorado Springs; Frank L. Dennis, Colorado Springs.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; F. W. E. Henkel, Rifle; Ben Beshoar, Trinidad.

Committee on Medical Education: C. N. Meader, chairman, Denver; F. M. Heller, Pueblo; J. J. Waring, Denver.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; J. A. Wenk, Colorado Springs; J. J. Pattee, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. N. Meader, chairman, Denver (term expires 1926); W. T. Little, Canon City (term expires 1927); C. O. Giese, Colorado Springs (term expires 1928).

Committee on Military Affairs: Cuthbert Powell, chairman, Denver; Crum Epler, Pueblo; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: C. D. Spivak, chairman, Denver; Philip Hillkowitz, Denver; A. Freudenthal, Trinidad.

Committee to Study Model Constitution and By-Laws: C. N. Meader, chairman, Denver; Melville Black, Denver; W. H. Crisp, Denver.

Committee to Confer with Boy Scouts of Colorado: E. B. Swerdfeger, chairman, Denver; T. R. Love, Denver; Harry Canby, Denver.

Curator of 1925 Exhibits: E. D. Downing, Woodmen.

Committee to Consider Full-Time Secretary: Melville Black, chairman, Denver; Edward Jackson, Denver; B. B. Blotz, Rocky Ford.

TUNING IN

Mortality Record Improves

The health record of American and Canadian wage-earners and their families during the first nine month of 1925 has never been equalled during the corresponding period of any past year. This is clearly indicated by the unprecedentedly favorable mortality experience of the more than 16,000,000 industrial policyholders of the Metropolitan Life Insurance Company. Among the white policyholders, the deathrate of 8.2 per 1,000 may be compared with 9.2 for January to September, 1924; with 8.8 in 1923; 8.4 in 1922; 8.2 in 1921, and 9.8 in 1920. It is true that a rate identical with that of this year was recorded for the same period of 1921; but in that year the Company did not insure infants, whose mortality is higher than in any other age group. The 1925 figure, therefore shows pronounced improvement over the former minimum. The record for the colored policyholders is not quite so favorable. While improvement is shown over the first nine months of 1924, this year's deathrate to date, is not as good as in 1922 and 1921.—Statistical Bulletin, Metropolitan Life Insurance Company.

AMERICAN BOARD OF OTOLARYNGOLOGY

An examination will be held by the American Board of Otolaryngology in Dallas, Texas, on Monday, April 19, 1926, and in San Francisco, California, on Tuesday, April 27, 1926.

Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri. H. W. LOEB, Secretary.

Medical Women's National Association

The twelfth annual meeting of the Medical Women's National Association will take place April 18-19, at Dallas, Texas, in conjunction with the American Medical Association meeting.

The headquarters of the M. W. N. A. are the Hotel Baker. Dr. May Agnes Hopkins, Medical Arts building, Dallas, Texas, is the chairman of the committee on arrangements.

Child Welfare in the League of Nations

An American woman, Miss Julia Lathrop, first chief of the Children's Bureau, has been appointed to serve in connection with the child welfare committee of the League of Nations. Miss Lathrop is one of three American experts who will advise the committee—the other two being Miss Charlotte Whitton of the Canadian Council on Child Welfare and Dr. Ismael Valdes of Chile, president of the Pan-American Child Welfare Congress. Grace Abbott, chief of the Children's Bureau, represents the United States on the committee in an unofficial capacity.—Children's Bureau.

Botanists name a long list of plants which will produce the milky sap containing rubber. The most important of these today is the Para rubber tree, *Hevea guianensis*. It grew originally in the Amazon Valley, but was bootlegged out more than half a century ago by British planters who tried it out in Kew Gardens, London, and in Ceylon, to see if it would grow outside of Brazil. Then it was used to start the vast plantations in the East Indies that are now supplying the world with most of its rubber.—Science Service.



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PIRACY STILL EXISTS

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"As I review the case from beginning to end I am filled with admiration at the expert handling of this case. It certainly gives the professional man a feeling of great security to know he has the protection of a legal company against these hold-up people, who prey upon the professional man at each and every opportunity, where they think there is a possibility of getting some easy money. However, this type of individual is what we are up against, and it is a godsend that we have the Medical Protective Company who know how to handle these fakers."

A malpractice charge is no respecter of persons; the time of the attack cannot be foretold; past immunity is no guarantee to future safety.

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Ears "Fitted" to Hear

Some day ear specialists may fit patients with instruments suited to their particular form of deafness, just as eye specialists now fit glasses to patients with eye troubles.

Dr. Wendell C. Phillips, president-elect of the American Medical Association, and chairman of the federation committee on research, has stated that there are over seventy-five varieties of hearing aids on the market, and that they very greatly. So little is known about the mechanism and range of usefulness of the different devices that they are usually prescribed by the trial and error principle. This results, Dr. Phillips explained, in much disappointment and considerable financial loss to the hard of hearing.—Science Service.

An ancient Chinese remedy, esteemed in the East for 5,000 years, promises to become a powerful new tool in the hands of modern doctors. The drug, which is being studied by Dr. Chen, is known as ephedrine and is the active principle of a lowly herb.

"The most important property of the purified drug is its ability to raise the blood pressure over long periods. In this respect it is superior to adrenalin, which causes only a temporary rise," said Dr. Chen.—Science Service.

Leprosy is a problem in the Philippines, no less today than it was in the past. To the Emperor of Japan is attributed the sending of 150 lepers to our country in 1633 to be cared for by the Catholic priests. But it is almost unquestionable now that the first introduction of this disease must have occurred previous to that time, due to active commercial relations with China and Japan, already obtaining even before the arrival of the Spaniards in these islands.—Journal of the Philippine Islands Medical Association.

Medical Study Tour to Europe

The Travel Study Club of American Physicians, founded at the London International Medical Congress of 1913, is announcing plans for its 1926 study tour. Sailing from New York on June 12th, the party will visit clinics and medical institutions in the medical centers of Oslo (Christiania), Stockholm, Copenhagen (optional to Berlin and Munich), Cologne, Heidelberg, Strasbourg, Berne, Zurich, Leysin, Geneva, Paris and London, returning on August 8th. Dr. Louis L. Seaman of New York is president, Drs. Fred H. Albee of New York, Edward B. Heckel of Pittsburgh, John P. Lord of Omaha, vice presidents. Physicians in good standing, to the limit of fifty, are invited to participate in this tour, and the secretary, Dr. Richard Kovacs, 223 East Sixty-eighth street, New York City, will supply any further information desired.—Travel Study Club of American Physicians.

Food for Thought

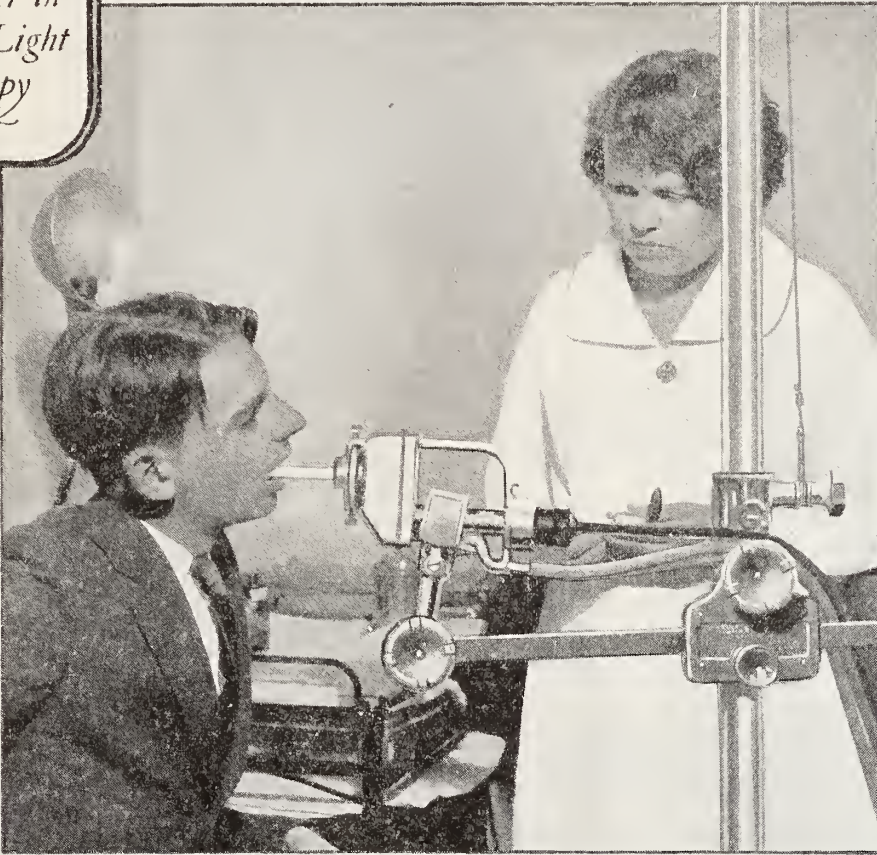
J. A. Glaze of the University of Chicago tested the psychological effects of fasting on a number of subjects and reported the results to the American Psychological Association, which met at Cornell University recently. Two men and a woman lived on water alone for from ten to thirty-three days.

One of the most important facts determined was that the mental efficiency of all the subjects as shown by their performance of tests, de-

(Continued on Page X)

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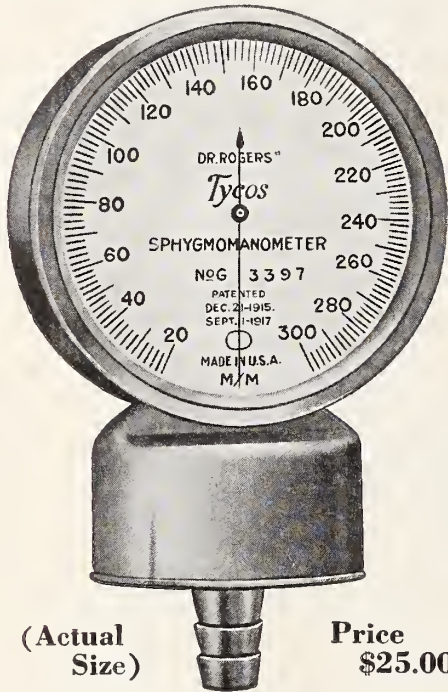
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Dr.

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TUNING IN

(Continued from Page VIII)

creased during the fast, in five of the tests out of the total of seven. The average loss in efficiency in comparison with the period before and after the fast ranged from one to twenty-four per cent.—Science Service.

"About one-half of the patients with chronic heart disease are of an age at which their earning capacity should be at its highest and when family responsibilities are likely to be heaviest," Dr. Carr explained. "This disease causes partial disability for years or total disability for over a year and a half."

One-third of the families represented in one of the dispensaries were dependent upon charity, and figures obtained by Dr. Carr from two institutions showed that the economic loss, both public and private, for only a small part of the heart disease patients, mounted up into the hundred thousands.—Science Service.

Nerves

Dr. Matthias Nicoll, Jr., state commissioner of health, states that people may be divided into three classes: the healthy, the sick and those who seem to "enjoy poor health." He says the first class needs only greatly increased numbers, the second, sound medical advice, and the third a change of mental attitude toward things in general and themselves in particular.

Campaign Against Diphtheria

In a radio health talk broadcast Friday night from station WGY, Dr. Matthias Nicoll, Jr., state commissioner of health, announced the commencement of a five year campaign for the eradication of diphtheria from New York state. According to the commissioner this is to be a concerted effort on the part of the State Department of Health, the State Department of Education, the Metropolitan Life Insurance Company and the Committee on Tuberculosis and Public Health of the State Charities Aid Association.—N. Y. State Dept. of Health.

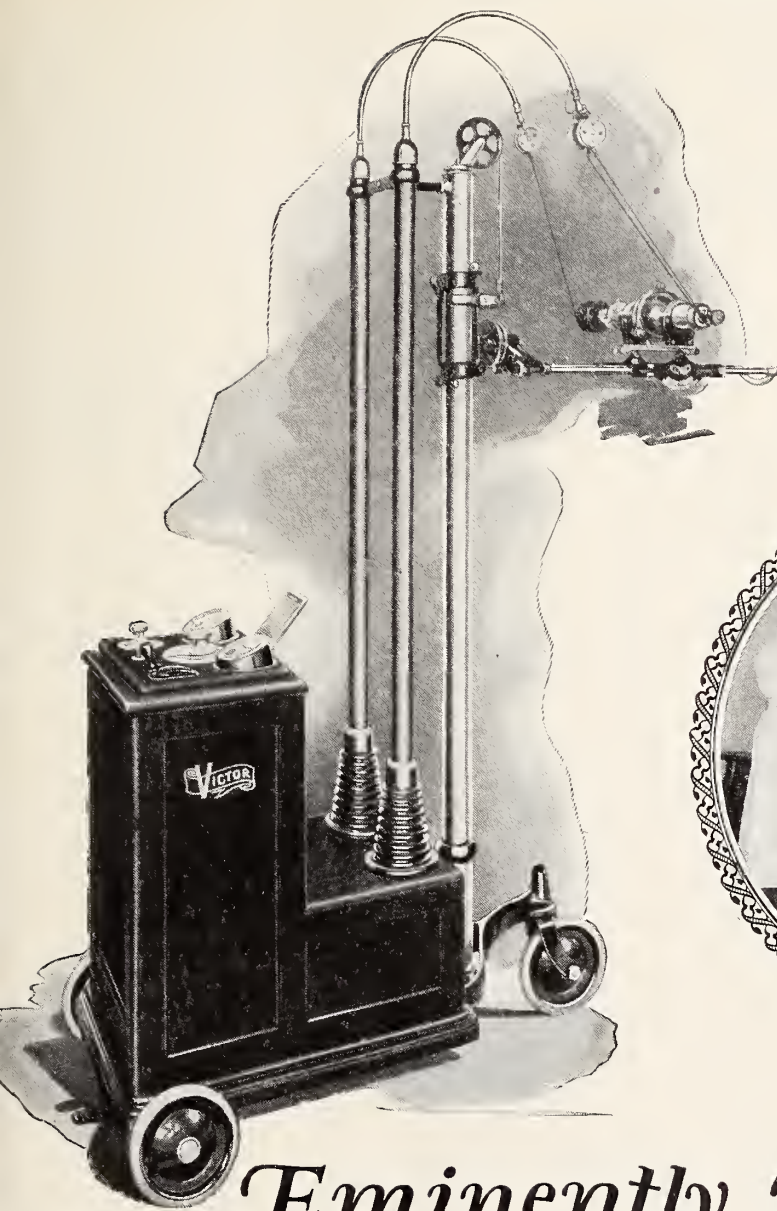
Long a Biped

Man stood on his own legs, weak-kneed though he was, from the time of his origin, for as Dr. Dudley J. Morton of the department of surgery of Yale University, told members of the American Anthropological Association meeting here, fossil evidence shows that on erect posture has existed in the anthropoid ape stem as far back possibly as the Oligocene.—Science Service.

Strip Film Views of Syphilis

The United States Public Health Service has recently announced the release of strip film views illustrating lesions of syphilis and of skin diseases simulating syphilis. The preparation of these pictorial studies in such convenient and serviceable form was made possible through the courtesy of a number of eminent syphilologists and dermatologists whose private collections of photographs were used in making the strip film pictures. The views are taken from both acquired and congenital cases. They depict not only the usual genital and extra-genital lesions but a number of rare and unusual views are also shown.—United States Public Health Service.

(Continued on Page XII)



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TUNING IN

(Continued from Page X)

No climate or race of people is exempt from cancer, and a half a million die each year of the disease, says Dr. G. Fichera, in an article in the *Prensa Medica*. Europe alone accounts for 300,000 cases, and North America for 95,000. England's cancer mortality is placed at 45,000 a year, that of France at 24,000, Italy 27,000, and Argentina 5,700.—Science Service.

Dear Doctor:

Won't you kindly mention in the next issue of your periodical that Physical Therapeutics is the name selected for the periodical that we have been sending to you under the title of the *American Journal of Electro-Therapeutics and Radiology*? The latter title was cumbersome and this accounts for the change.

Faithfully yours,

CHARLES C. THOMAS.

One-third of 2,044 children under school age were tested in Gary, Indiana, and found by federal investigators to suffer from defective vision.—Eye Sight Conservation Council.

Paget, in his fascinating book on surgical pathology, written more than fifty years ago, described the natural deterioration of age as the "calmness of decay, due either to a reduction in quantity, as in the withering of age, or to a reduction in quality, as in the obesity of age."—The Journal of the Michigan State Medical Society.

The public health cow just now is giving down milk freely and the number of welfare uplifters engaged in the wild scramble to grab a teat is legion. In these forces that are at work in the public mind there is danger and evidence that the interests of the medical profession are being lost sight of. It behooves us as individuals and as members of medical societies not to sit supinely by, but in one or another way, perhaps as the Department of Public Relations of the C. & O. R. R. is doing, educate the public to an appreciation of the fact that in the last analysis the welfare of the medical profession is the welfare of the public, too.—International Journal of Medicine and Surgery.

The Student Habit

When the modern student compares his outfit of brains with that which was given his ancestor in remote time, he meets with another surprise. The men who lived in Europe twenty thousand years ago were just as well equipped as he is as far as concerns size and form of brain. What did these ancient hunters do with so big a brain? They had no professional examinations to pass, no briefs to master, no leaders to write, no mathematical problems to solve, no ancient classics to translate, no sermons to prepare and preach. If brains were given to us merely for such purposes, then those ancient hunters had somehow come by a superfluity. Brains, however, serve the needs of more than the intellectual side of our lives; beneath the intellectual centers lie a myriad of others which subserve more menial duties—by the exercise of which we fill the cup of life's enjoyment.—Sir Arthur Keith, *Lancet*, Oct. 3, 1925.

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EDWARD JACKSON

The Colorado Ophthalmological Society was host for a dinner on March 30th, to Dr. Edward Jackson, in honor of his seventieth birthday. Ophthalmologists from far and near gathered to pay their respects to one who has contributed so much to ophthalmology.

A volume, "Contributions to Ophthalmic Science" dedicated to Dr. Jackson, was presented to the honor guest of the evening. The volume consists of fifty scientific contributions, all by ophthalmologists living in the United States, and was made possible by the subscriptions of two hundred and ninety of Dr. Jackson's colleagues and pupils.

It was a most inspiring and delightful occasion, and the speeches of the evening made one fully realize that "service" rendered wholeheartedly and unselfishly, under all circumstances, was not the least of the many attributes which has endeared Dr. Jackson to all who know him.

D. O.

IN PRINT

We are in receipt of newspaper clippings from El Paso, Texas. These clippings are articles which were prepared for publication by the El Paso County Medical Society and contain valuable information regarding the medical profession. The articles are well written and are dignified in appearance. Such subjects as the following have already been used: "What the Physician Has Done for Humanity", "Disease and Its Prevention", "What Does Your Doctor Know", etc. Each article embraces two columns appropriately centered by the ca-

duceus and signed by the El Paso County Medical Society.

It is our impression that this is one of the most effective and practical ways of conveying medical knowledge to the lay public. If such informative articles can really popularize the application of known physical, chemical and biological facts to the prevention and cure of disease, and banish the false trust imposed in modern soothsayers and fakers, no limit can be set to their social value. We will keep our eyes directed toward Texas to see the end results of this venture in paid advertising of medical science.

UNDERWORLD SCIENCE

David Starr Jordan has recently been quoted, in a discussion of pseudo-science, as having coined the striking phrase of "underworld science". He points out that there is a growing, worthless literature which is uncritically accepted as scientific fact and suggests a reason for such acceptance.

"Individuals naturally grow impatient with the slow progress of testing realities, and seek for swifter answers to the problems of the universe. They would hurry up the future, not by science, but by something that looks like it, and is therefore equally good. The 'running high jump' cares nothing for the difference between analogy or chance resemblance, and homology is fundamental identity. It thus confuses attractive fancy with verified truth."

He refers to certain writings which connect astrology with anthropology. To that large class of scientists known as physicians

he could well recite a long list of books that set forth to the gullible public the absurd facts of the "underworld medical science". This fortunate and appropriate term could well be capitalized by designating the modern healing cults as "underworld scientists", as indeed they are.

THE INSANITY OF GUY DE MAUPASSANT

There has been much controversy as to the last illness of Guy de Maupassant, novelist, pessimist, cynic, and cleverest of all short story writers, not excepting our own jazzy O. Henry. Born in 1850, friend and pupil of Flaubert, "last of the naturalists" (in fiction), brilliantly successful, his mind and body gradually broke down after the age of thirty-six years, and in 1892 he died insane after an attempt at suicide.

Max Nordau, who somehow managed to discover insanity in almost all great authors, and also rounded out his thesis by tracing evidence of mental unbalance in their ancestry, of course included de Maupassant in his gallery of associated genius and degeneracy. An English essay writer, a "friend" of de Maupassant (most great men have them by the thousand—after death), declares that there was no trace of insanity in either the paternal or the maternal line of de Maupassant's family; and adds that this negation was very thoroughly investigated and established by as industrious a student as Emile Zola.

The English writer also dismisses as wicked rumor the report that de Maupassant "was qualified to be classed among the sufferers depicted by Brioux in a well-known and very stupid play of his". In other words, the English "friend" cannot stand the imputation that his short story writer was affected with syphilis and died of its later consequences.

But it is admitted, by the same anonymous friend, that de Maupassant inherited at least one significant weakness from his father, who had "what the French term

'le diable au corps' ", and was "never happy save in the society of pretty women". Perhaps the son even exemplified the precept of Disraeli, who advised one of his male intimates to "treat a pretty woman as you would a good cigar—put it down before you get tired of it". This affinity for the opposite sex is declared by the English "friend" to have been the chief cause of de Maupassant's lunacy and premature demise.

As to this last statement it may be that the medical man will readily agree with the "friend", but by a somewhat different line of reasoning. A verse by the Elizabethan poet Sir John Suckling scoffs at all friendship as feigning, and all love as mere folly, and in another couplet Antoine Brit remarks that the first sigh of love is the last of wisdom.

A few symptoms, or symptom groups, of de Maupassant's illness are mentioned by the English "friend", who displays a naïve ignorance (perhaps wilful) of things medical: loss of memory, insomnia, "locomotor ataxia", and the final insanity. Concerning one who was "simply kissed into Charon's skiff", it seems none too easy to escape the conclusion that de Maupassant paid the penalty that in one way or other has been demanded of a goodly proportion of the human race; that in the course of his amatory adventures he had acquired syphilis, and that he finished life as a sufferer from general paresis, a disease now universally regarded as one of the manifestations of infection by the spirocheta pallida.

The world at large shares with de Maupassant's "friend" a good-natured and sympathetic tolerance for that extravagance in loving which is a part of nature's scheme of things; but they are also alike in refusing to recognize that the sexual diseases are rather misfortunes than crimes. Morality, after all, is chiefly or wholly a matter of profit and loss. Intrinsically speaking, de Maupassant would have been no less disgraceful, and no more respectable, if, after his early excesses and indiscretions, he had lived to be eighty instead of dying in an insane asylum at forty-two. W. H. C.

PRACTICAL MEDICAL AND SURGICAL ASPECTS OF THORACIC TUBERCULOSIS*

C. J. LOWEN, M.D.

I. D. BRONFIN, M.D.

DENVER, COLO.

I. MEDICAL ASPECTS

I. D. BRONFIN, M.D.

Introductory Remarks: There is no one organ or set of organs in the human body absolutely immune to tuberculous infection or actual disease, but the local manifestations and constitutional reactions differ so widely in character and intensity that tuberculosis has justly been termed the leading protean disease. The comparatively benign character and curability of extra-pulmonary tuberculous affections has long been recognized, though there are striking exceptions, such as laryngeal or intestinal tuberculosis. Recent studies, however, have shown that very rarely, if ever, is tuberculosis a primary disease in those organs. In the majority of instances, the primary focus is in the lungs or in the lymphatics within the chest. Among LoGrasso's¹ 634 extra-pulmonary cases, 78 per cent of adults and 18 per cent of children showed evidence of pulmonary involvement. It is, therefore, not surprising that more attention has been focused upon thoracic affections, both because of their gravity and also because the thorax is apparently the chief focus from which tubercle bacilli may become metastasized to other parts of the body. In these facts we find justification for presenting the subject of thoracic tuberculosis. What is to follow is not the obiter dicta of one individual; it is a brief summary of present day knowledge, borne out by our personal bed-side experience.

(a) **The Chest Wall:** The superficial cold abscess is not as uncommon in this region as one would be led to believe from the paucity of the literature on this subject. In all of our twelve cases the location of the abscess was at the costosternal junction. Of these, two had, in addition to the abscess over the costo-sternal area, another abscess 4 to 6 inches further down the chest wall with a communicating sinus, as the contents

could be easily displaced by pressure from one to the other location. Recurrence of the disease in both patients in from 6 months to one year after radical excision of the sinus tracts proved to us the correctness of Robinson's² assertion that these abscesses are of pleuro-pulmonary origin. The tubercle bacilli apparently invade the chest wall through the lymphatics which may be found in old pleural adhesions. In one case the problem was the differential diagnosis between cold abscess and empyema necessitatis. We knew of the existence of an empyema which followed in the wake of induced pneumothorax. Thoracoplasty showed that over the area of the cold abscess the posterior surfaces of the ribs were in a state of necrosis. This is what probably obtains in most cases, and therefore very little can be expected from mere incision or excision of the soft parts. Our best results have been obtained from heliotherapy or the ultra-violet rays. The old teaching that a cold abscess would better be left alone is therefore still true, and our experience also bears out the more modern teaching that extra-pulmonary tuberculous lesions are very favorably influenced by heliotherapy. If the pain is intense and the pus is under great tension, aspiration of the contents with a large calibre needle is indicated. If the material is too thick for aspiration, a small incision is made at the bottom of the fluctuation and the contents evacuated. The wound usually heals in from one to two weeks by exposing it to the sun.

(b) **The Pleura:** That not all chest pains are due to pleurisy is a well known fact; nevertheless, intercostal neuralgia, herpes zoster, simple muscle bruise from excessive cough and periostitis or perichondritis are conditions frequently mistaken for and treated as pleurisy. The friction sounds, due to apical pleuritis, are often difficult to differentiate from crepitant rales. Feeble breath sounds suggest pleurisy. Pleuritis of the interlobar fissures or the diaphragm do not give the classic friction rales, but they

*From the Sanatorium of the Jewish Consumptives' Relief Society, Sanatorium, Colorado

Read at the annual meeting of the Colorado State Medical Society, Colorado Springs, September 29-October 1, 1925.

give rise to other characteristic symptoms and suggestive physical signs which make a reasonably certain diagnosis possible.

Notwithstanding precautions against pitfalls in diagnosis, a striking error will be made occasionally. The following example is worth citing: We had a patient who had been on heliotherapy for two years, with resulting marked pigmentation. His complaints of left-sided pain, chiefly between the second and fifth ribs, from midsternum to the angle of scapula, aggravated by inspiration and slightly relieved by strapping, suggested a possible interlobar pleurisy in the face of negative physical signs. After three months of observation, during which time he was strapped on and off with adhesive plaster, we discovered casually a marked point of tenderness over the eighth thoracic spine. A skiagraph showed caries of that vertebra. The pain was completely relieved after orthopedic measures had been instituted to immobilize the spine.

Nothing new can be said regarding the treatment of pleurisy. Immobilization of the affected side with adhesive plaster is still the main standby. The tight binder over the lower half of the chest is often as efficacious and has the added advantage of not causing skin irritation. In the average case the use of morphine is not necessary, salicylates and quinine being quite efficacious in the control of pain.

(c) **Empyema:** This is a suppurative pleuritis caused solely by the tubercle bacillus or the latter is one of the organisms of a mixed infection. Although Hodenpyl³ and, more recently, Hedbloom⁴ recognize a primary form, as a clinical entity it is usually encountered in cases with far advanced ulcerative pulmonary tuberculosis. Rupture of a subpleural focus or cavity, producing a spontaneous pneumothorax, has unquestionably increased in frequency since the more universal adoption of collapse therapy. Attention to this fact has been called by one of us⁵ in a special paper on the subject. The tearing of adhesions as a result of increased intrathoracic pressure has been described by Cocks⁶, Webb,⁷ Marshak and Craighead⁸, Krause⁹, and others. Among Duboff's¹⁰ 20 cases of empyema, 10 developed this compli-

cation during the course of therapeutic pneumothorax. Among our own 18 cases observed during the past 5 years, 14 gave a definite history of pulmonary perforation, and in 10 of these 14 cases the accident occurred during collapse treatment. Very little need be said on the symptoms which are characteristic enough to make the diagnosis comparatively easy. Fluoroscopy is of the greatest aid and, in doubtful cases, animal inoculation with the aspirated pus will prove conclusively the tuberculous nature of the affection.

There are certain prophylactic measures which deserve more than casual mention. A serous effusion which does not give rise to cardio-respiratory embarrassment should not be aspirated. When such effusion occurs in the wake of collapse therapy, it is better not to interfere, as the fluid compresses the lung much more effectively than air. While aspiration and replacement by air prevents the obliteration of the pleural space, it is doubtful whether the object to be gained is worth the risk of subjecting the patient to the grave danger of infection. Besides, it has been our experience that large effusions eventually cause an obliteration of the pneumothorax cavity, regardless of the measures taken to prevent that occurrence. An effusion may persist for a long time and remain serous, but it may become purulent after repeated tapplings, even if the latter be performed with the most aseptic technique. Low grade fever must not be considered an indication for aspiration, as it may be due to the underlying tuberculosis or, as is more often the case, to tuberculous involvement of the opposite lung. Aspiration has failed in the majority of our cases to change the febrile course.

The conservative treatment of tuberculous empyema may be considered only when the purulent exudate is in a closed cavity. Even then, the so-called closed or Mozingo method of drainage has failed to give any satisfactory results. Of the three cases treated by this method, all developed fistulae, necessitating rib resection and later thoracoplasty. We believe that repeated tapplings and finally the use of the trocar converted a sterile or

pure tuberculous empyema into the more dangerous type of mixed infection.

Our experience justifies the following conclusions regarding empyema:

1. Tuberculous empyema is one of the most serious complications.

2. Pulmonary perforation is the leading etiological factor.

3. Serous effusions should not be aspirated unless they give rise to urgent pressure symptoms.

4. Uninfected tuberculous pus in the pleural cavity of very long duration, when the prospects for obliterating the empyemic cavity are poor, should be considered and treated as a simple serous effusion.

5. The medical treatment of empyema is far from satisfactory.

6. When an empyema develops rapidly after pulmonary perforation, surgical interference should be resorted to as soon as the shock and other acute symptoms have subsided.

7. The shorter the duration of the empyema the better the outlook for satisfactory results by surgical methods, for the longer the lung remains compressed by fluid the less are the chances for its re-expansion, and the ultimate eradication of the empyemic cavity.

(d) **Spontaneous Pneumothorax:** The scope of this paper does not permit going into academic discussions. Suffice it to say that this accident occurs more frequently than is generally supposed. Many so-called reactions following gas refills for therapeutic purposes are due to traumatic perforation of the lung by the infiltrating or insufflating needle. The importance of fluoroscopic observation before and after each refill cannot be too strongly stressed. The failure in certain instances to obtain a pleural space at the first attempt and the ease with which such space was found on the second or third attempt made us suspect the existence of an unrecognized traumatic pneumothorax, especially in those patients who complained of pain after instrumentation. The x-ray plate prior to a successful insufflation verified our suspicion. By fluoroscopy alone we could not definitely determine that point. Again, we have seen on the plate a well de-

veloped pneumothorax for which we could not hold the initial 200 or 300 cubic centimeters of air responsible.

Large perforations due to rupture of an emphysematous bleb, a cavity, or the tearing of a pleural adhesion, give rise to serious and at times life-threatening symptoms, by virtue of the rapidly increasing intra-pleural pressure, causing complete collapse of the lung and dislocation of the heart and large vessels. Drastic action is necessary. Besides stimulation, the removal of air is indicated. The valvular pneumothorax is best treated by placing a permanent catheter into the chest through a trocar, connected with a rubber tube leading to a bottle of sterile water. Caution must be exercised not to immerse the glass tube to which the distal end of the rubber tubing is attached too deeply into the water so as not to create a mechanical difficulty in overcoming the pressure of a long vertical column of water. This method of permanent air drainage has proven a life-saving procedure in a few cases. Betchov's¹¹ objection to the use of a canula on the ground that it prevents the closure of the perforation and that the pleural cavity is exposed to infection is not borne out by our experience. The absence of an effusion or other evidence of infection in four cases treated by this method was striking, although we recognize the possibility that the pneumothorax in these cases might have been due to the rupture of uninfected emphysematous blebs. Generally speaking, infection arises from within the chest and not from outside sources. In one of the cases so treated, complete re-expansion occurred in 24 hours. The development of a purulent effusion is, as already remarked, an indication for early surgical interference.

THE LUNGS

Hemoptysis: No symptom is as shocking to the patient as hemorrhage, and no other symptom exercises a better after-effect in making the patient adhere to the "rules of the game." But, as is well known, there are many other diseases which give rise to pulmonary hemorrhage and thereby closely mimic tuberculosis. My first experience was with a woman who was admitted to the sana-

torium because of repeated brisk hemoptyses. A clinician made a diagnosis of pulmonary tuberculosis. Physical examination elicited many large, bubbling rales throughout the chest. The roentgenograph was not conclusive. On necropsy the lungs were normal excepting for passive congestion, and the heart showed a sclerosed and deformed mitral valve. Three cases with classic signs and symptoms of bronchiectasis had frank hemoptyses for which they were sent to our institution with a diagnosis of tuberculosis. Recently a young, highly neurotic woman was sent to us from New York, stigmatized as tuberculous because of streaky sputum. Repeated physical and roentgen examinations were negative, and so were also the intra-cutaneous tuberculin and animal inoculation tests. It is possible that the occasional bleeding came from the gums, but to the patient each speck of red color in the sputum strengthened her conviction that she is a hopeless consumptive. For the neurotic, the tuberculosis sanatorium is not only objectionable, but dangerous.

The treatment of pulmonary hemorrhage is notoriously unsatisfactory. The heavy ice-bag to the chest, the swallowing of ice, the administration of nitrites, calcium lactates, ergot, and the numerous proprietary sera with alleged blood clotting properties have proven in our experience valueless. Morphine is decidedly harmful, as it abolishes the reflexes, thereby favoring stagnation of secretions. The intravenous administration of calcium chloride has likewise proven disappointing. The only effective measure is the collapse of the lung, if the location of the bleeding area can be ascertained with reasonable accuracy, and the opposite lung is not too extensively diseased. Fortunately, the bleeding ceases in the majority of instances, and all that is necessary is the assurance of the patient by the physician and nurse. The half sitting position has been said to prevent aspiration pneumonia. All our patients are routinely propped up in cases of hemoptysis, but we cannot say to what extent this position prevents extension of the tuberculous process. Polyvalent vaccine failed to give encouraging results. We must frankly admit our ignorance regarding

the prophylaxis of aspiration or bronchopneumonia.

(b) Collapse Therapy: A recent study of our 143 patients who had received pneumothorax during the past five years led us to the following conclusions:

1. The weakest point in the present day practice of collapse therapy is its late application.

2. The presence or absence of a pleural space cannot be determined by any measure other than the needle and the manometer.

3. The longer the duration of the pulmonary lesion the greater the tendency to unsatisfactory mechanical results.

4. The incidence of complications, such as effusion, pulmonary perforation and pleural shock is greater in the advanced than in the early cases.

5. A unilateral or nearly unilateral lesion which gives rise to intermittent constitutional symptoms should be collapsed, even if during the intervals the patient enjoys freedom from any physical ailment.

6. The chances for economic recovery are better when pneumothorax is instituted comparatively early in the disease.

7. When a pleural space cannot be obtained on account of adhesions, pulmonary immobilization by means of surgical methods should be seriously considered.

(c) Extra Pleural Thoracoplasty: This very promising procedure has only recently been introduced into this country. Greater care must be exercised in the selection of cases for surgical intervention than for induced pneumothorax. The operator can take more chances on the contralateral lung in instituting pneumothorax than he can in thoracoplasty. The importance of an efficient myocardium can not be over emphasized. Besides the surgical shock incident to the operation, there is a more rapid and more extensive alteration in the intrapleural pressure following a first stage thoracoplasty than after the introduction of 200 or 300 cubic centimeters of air. This should be borne in mind when the integrity of the heart is taken into consideration. Our limited experience is in accord with accepted views regarding contra-indications. These, in brief, are as follows:

1. **Contra-lateral Active Disease:** A recent though small infiltration is more dangerous than a small, well circumscribed, thick-walled cavity. The former may be more responsible for frequent febrile reactions than the lung intended for collapse. In one case the second stage operation has been postponed indefinitely on account of a small area of infiltration, not larger than a silver dollar, at the base of the left upper lobe of the other lung. This became manifest on the x-ray plate two weeks after the first operation, although there had been a few persistent rales at the angle of the scapula many weeks prior to interference. To what extent that small area of disease was responsible for the frequent flare-ups can not be said with any degree of accuracy, but the fact that the febrile reactions became less frequent and finally ceased coincident with a clearance of the lesion tends to point an accusing finger toward that lung.

2. **Myocardial Insufficiency:** We recognize the difficulty encountered in properly evaluating the condition of the heart muscles, but where there is a persistent tachycardia not attributable to toxemia, or irregularity in rhythm and force the operation should not be undertaken. One death in our series was caused directly by cardiac failure four months after the completion of the second stage.

3. **Age:** Our first case was a woman 53 years old. Her very stormy post-operative course and the protracted convalescence could be attributed to no other factor than to age. It is our belief that patients past fifty are not suitable subjects, though there may be exceptions to this rule.

4. **Extra-pulmonary Complications:** Active intestinal symptoms suggestive of tuberculous enteritis, acute laryngeal involvement or advancing renal disease contraindicate the operation.

5. The operation should not be undertaken unless induced pneumothorax has been attempted and a satisfactory space not obtained.

From these brief remarks it is obvious that successful results depend in a great measure upon the extent of the co-operation which exists between the clinician and the surgeon.

Our practice is to have one or more joint consultations of the medical and surgical staffs before resorting to surgical interference. The exacting details of post-operative treatment should also be carried on jointly by both branches of the service, so as to secure thorough and well coordinated team work.

Differential Diagnosis

The temptation to delve into a discussion of differential diagnosis is almost irresistible. Only a few words will have to suffice. The pandemic of influenza in 1918 has left in its wake many suffering from pulmonary basal suppurations. Neither the physical nor the roentgen signs are characteristic of tuberculous lesions and the sputum is invariably negative for tubercle bacilli. Only in one out of a total of 12 cases seen during the last four years was there a history of a positive sputum. This we could not, however, verify by our examinations and animal inoculation. Bronchiectasis is another type of suppuration commonly seen in tuberculosis sanatoria. The diagnosis is usually made easily by physical signs and symptoms. The skiagraph is rarely of value. The report of an occasion positive sputum, not verified by animal inoculation, should not be considered conclusive proof of the existence of tuberculosis. One case spent five years in institutions, because of two reports of a positive sputum. Autopsy failed to disclose gross or microscopic evidence of any tuberculous lesions in the lung.

The oval shaped, ground glass roentgenographic shadow is characteristic of lung abscess. The history and the character of the sputum often give a clue, but there are some atypical cases which are baffling, though tuberculosis can easily be ruled out. We have seen only one tuberculous lung abscess which was cured by thoracoplasty.

During the last four years, six cases of carcinoma of the lungs were referred to us with a diagnosis of tuberculosis. In five, the diagnosis was made during life, either by the characteristic roentgen shadows or by biopsy examination of excised glands.

The Heart in Tuberculosis

It is regrettable that phthisiologists have

so far paid little attention to the heart. We all know that the prognosis in the majority of cases of chronic phthisis depends greatly upon cardiac efficiency. Patients have come to have great fear of swollen ankles, for they know that it means approaching death. Occasionally a patient comes to us with what seems to him happy news that he has gained several pounds in weight, when examination discloses that such gain is due to water-logging of the tissues. Asthma or so-called asthmatic bronchitis is often an early symptom of cardiac disease, and the relief obtained from digitalis medication in such cases is therapeutic proof of this assertion. It is practical wisdom therefore to focus attention upon the heart and to remember the old adage that more people die from complications than from the primary disease.

Summary

The main object of this brief survey is to emphasize the following points:

1. There are many diseases which closely mimic tuberculosis. Therefore, no diagnosis of tuberculosis should be made unless verified by laboratory tests.

2. Extrapulmonary tuberculous lesions should be considered as a constitutional disease with local manifestations, and treated as such. Heliotherapy usually gives the best results.

3. Tuberculous empyema constitutes a formidable problem for the clinician and surgeon. Early operative intervention, in cases of infected empyema following lung perforation, holds out the greatest promise for cure.

4. If therapeutic pneumothorax is to accomplish worth while results, it should be instituted not as a last resort measure.

5. The success of thorocoplasty depends in a great measure upon the extent of the cooperation existing between clinician and surgeon.

6. Upon the integrity of the heart often depends the outcome of certain measures instituted for the relief or cure of pulmonary tuberculosis.

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II. SURGICAL ASPECTS

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Surgery of the tuberculous thorax is not standardized. This alone is evidence of its many disappointments. It must be conceded that, aside from the mechanics used to permit healing of a tuberculous process, time is also a most important factor. There are many who believe in a watchful waiting attitude which means at the best, palliation. There is no doubt in our mind that many of these patients are permitted to go on to hopeless invalidism and death, when earlier intervention may have made useful citizens. However, I wish to emphasize at this point that indiscriminate surgery has no place in the tuberculous thorax. Experience has taught us that conservatism as a general thing is better, yet each case should be decided on its own particular liabilities and assets rather than the generalized results applicable to such pathology.

In private practice it is generally quite impossible for these patients to get the full benefit of proper hygiene and sanitation—hence surgery suffers accordingly. If good living conditions are necessary for the tuberculous patient to recover, how much more is it so after such an individual has been further temporarily devitalized by a surgical operation aimed to help him. The answer at the present time is the perfectly equipped institution specializing in the care of tuberculosis.

The diseases of the thorax amenable to surgical care are those of the osseous portion,

the pleura and the lungs. The osseous thorax is involved in two ways. It is either incidental or accidental to tuberculosis of its contents. The first needs no elaboration; the second comes frequently from poor technique in aspirating the thorax. The periosteum of the rib may be injured and, on withdrawing the needle, tubercle bacilli are deposited in a fertile field. The usual seat of incidental tuberculosis of the osseous thorax is at the costo-chondral junction of the lower ribs. Considerable difference of opinion exists as to whether or not this condition is strictly surgical. Experience with our own operated cases as well as those operated by others is that the cold abscess tends to recur within a few months after operation. Obviously it is difficult to remove all foci. The very operation itself tends to disseminate the infection to surrounding tissue. At times the involvement is so great that only the most extensive removal would meet mechanical requirements. These same cases have gotten well by more conservative methods such as heliotherapy, injections of chemicals, etc. Most of the operated cases are finally submitted to these procedures and do quite well. The principle of trying to eradicate tuberculosis by its surgical removal, has been superseded at present by attempting to attain a state that will permit its natural healing. It would be well to omit radical surgery in these cases unless a mixed infection demands it, or, as in a case we had recently with multiple involvement of the ribs, an extra pleural thoracoplasty was done because of an accompanying massive tuberculous empyema. In that way an attempt was made to kill two birds with one stone.

Tuberculosis of the pleura is another condition presenting much controversy as to its surgical care. Certainly a serous effusion is non-surgical except insofar as to relieve pressure. The same holds true for purulent effusions of the cold abscess type up to a certain point. We have all seen the occasional case which has carried a purulent effusion for years and apparently does well in spite of it. Most of them, however, do not, a mixed infection invariably supervenes necessitating rib resection with all its

disagreeable features. Finally when such a patient presents himself for radical cure with a totally collapsed lung and an absolutely non-flexible mediastinum and a pleura, an inch or more in thickness—such a cavity may be diminished but often times a cure is impossible. It would have been better in such a case to have explained to the patient earlier the probable ultimate results and, if he so chose, give him a better chance for a radical cure while he still had an elastic mediastinum and a pleura more nearly normal in thickness. Under these conditions one of the many rib removal operations would offer far better prospects for complete obliteration of the pleural cavity.

More trying and discouraging than the former condition is the spontaneous pneumothorax which becomes purulent. Again there is the occasional case in which the ruptured lung seals itself and the pleura is able to handle the infection in varying degrees even up to complete restitution. However, when the fistula remains open long enough, a severe infection of the pleural cavity is produced and, if the patient survives, he has a future of indefinite invalidism. Ultimately he comes for radical surgery to obliterate his cavity. Why not try to anticipate this earlier in the game? These lungs with active early treatment can occasionally be made to re-expand before too much exudate is deposited, if the fistula closes spontaneously—which most of them do. The argument may be offered that such a lung is better collapsed. That is not always so, but if so, an extra pleural collapse can be effected more easily than trying to eradicate some of these massive empyemic cavities.

We had a case a couple of years ago in which early intervention after total collapse of the lung permitted complete re-expansion. All of the generally accepted measures had failed. The patient was septic; cultures of the effusion showed streptococci and tubercle bacilli. Three ribs were resected at the most dependent portion. The pleura and skin were lipped by suturing. A rubber dam was hung over the opening, taking care of mediastinal flutter; this also created a negative pressure on inspiration. Irrigations of weak chlorazene solution were used;

the fistula closed spontaneously and in about six weeks there was complete re-expansion of the lung. The unique feature was the fact that later the contra-lateral lung gave considerable trouble and an induced compression of it was considered. This was never done because, one day while the patient was attending the theatre, without permission, a spontaneous rupture of this lung took place, death occurring within three hours—probably because he was unable to get suitable emergency treatment. Post mortem x-ray plates verified this diagnosis.

Persistent bronchial fistula is the greatest obstacle to curing a tuberculous empyema because it is constantly re-infecting the cavity by secretions from the lungs. Unless closed first, other measures are quite useless. Of all the methods of closing, the most efficient and simple is the actual cautery followed by covering with a muscle flap. One of our cases having an empyema and pleuro-bronchial fistula since 1916 had two thoracoplasties performed. One was done in 1921 and another in 1922, attaining good collapse. However, drainage still persisted because the fistula would not close. This patient had an enormously enlarged liver and spleen suggesting amyloid degeneration, which materially improved since his thoracoplasties. Early this year the cavity was freely opened, removing all ribs over it. The fistula was cauterized and a muscle flap sewed in position over it. Shortly thereafter the fistula closed, permitting the cavity to heal completely.

We now come to a comparatively new and fertile field in pulmonary surgery. That is extra-pleural compression of the lung. It is surprising how slowly it is being accepted in this country when such brilliant results have been attained abroad ever since Karl Spengler advocated it in 1890.

The surgeon and tuberculosis specialist are responsible to the general practitioner if they do not enlighten him as to the merits of this procedure in suitable cases. Archibald in a recent masterly article states that one may be figuratively snatched from the grave by its use to which all agree who have had experience.

Of the partial ways to get extra-pleural

lung compression, sectioning or resectioning of the phrenic nerve on the side of the most involved lung, causing paralysis of its diaphragm, is done. This is known as phrenectomy or phrenotomy, as the case may be. The permanency of paralysis depends on the amount of nerve removed. Archibald does not strongly stress it in his series of cases. Sauerbruch, who was an ardent advocate, uses it mostly now to test the other lung. The purpose of its use is to limit motion of the lung prior to thoracoplasty. It is also advocated as a therapeutic test to see how the good lung will react. Too, it is used in conjunction with induced pneumothorax. To justify its use routinely one must feel that, even though a minor operation, the psychic shock to the patient must be justified by end results. Our own experience with it in six cases did not show any unusual temporary results, except in one case.

Apicolysis, or compressing the apex is another partial measure which has a limited field in that a complete thoracoplasty is usually always indicated. This is strongly emphasized by Brauer, Spengler, Sauerbruch and Saugmann. Its chief use is in supplementing thoracoplasty where a cavity has remained uncollapsed, or following an induced pneumothorax under the same conditions.

A tuberculous cavity of the lung may have to be drained through the chest wall, if its drainage through a bronchus is blocked after attempting surgical collapse. Draining cavities, primarily as such, is poor mechanics because the cavity still remains.

The complete compression consists in removing sections of the first to eleventh ribs inclusive, the total rib structures removed approximating 125 cm. Alexander collected statistics showing definitely that a two or more stage operation has a better mortality than a one stage. It should be done preferably from below upward, taking from the eleventh, to the sixth rib inclusive, and if possible, three to six weeks later, removing the sections of the remaining five ribs. To wait longer than this sacrifices ideal collapse because beginning rib regeneration does not permit complete excursion

downward of the hemi thorax on its long axis. An occasional case may make it wise to change this routine.

All our work has been done in two or more stages. The indications for thoracoplasty have been dwelt upon by my co-essayist. One or two more points may be emphasized. The most involved lung cannot be too bad for thoracoplasty. The other lung ideally should be uninvolved, but is rarely so. Quiescent trouble at the apex with the lung otherwise free is quite acceptable. Our own experience agrees with others that lesions at the base or hilus under the most favorable circumstances should be approached with caution, if at all. However, the main factor, as stressed by all European workers, is to be sure that the patient has demonstrated a normal resistance to tuberculosis. For that reason it should never be attempted in early cases no matter how acceptable the case may appear technically. If there is no resistance in a rapidly advancing case, operation will hasten the end. According to Sauerbruch thoracoplasty causes a stasis of toxic lymph which stimulates connective tissue formation with ultimate encapsulation of the disease.

Paravertebral or a general anaesthesia are used depending on the temperament of the patient. All the laboratory and clinical refinements of care applicable to these cases are used before, during and after operation. We have used ethylene for nearly all of our general anaesthetics. With paravertebral anaesthesia we have found it advantageous to visualize the inter-costal spaces by making the incision through skin and muscle down to the ribs, after first getting a massive infiltration with one-fourth per cent novocain. As much as a pint of this may be used. It is then very simple to block the inter costal nerves, practically under the naked eye.

Many patients complain of severe pain in the arm for days after the operation. Experience has taught us this is due to heavy traction on the scapula which in turn stretches the brachial plexus. This happens while removing the first and second ribs. Carrying the incision high enough to completely divide the trapezius muscle, entirely obviates this symptom. The first and

second ribs can then be removed almost as easily as the lower ones and without heavy traction.

Post operative chest wall pain is in direct proportion to traumatized inter-costal nerves. Hence the cleaner the rib stripping the less the pain.

Anything that saves time in these cases is of value, if end results are not impaired. In our later cases we closed the wound with silkworm, only using cat-gut for necessary hemostasis. We used interrupted silkworm in the form of an inverted figure of eight. The inside loop approximates the muscle and the outside embraces all structures. Functional results are just as good as layer suture with cat-gut and it certainly minimizes the foreign material in the wound. Rubber tube drainage is used for forty-eight hours. It was our custom to strap these chests tightly after operation to secure greater compression. The discomfort to the patient was very marked. Since its discontinuance, such a patient is far more comfortable and x-ray findings and clinical results justify its disuse. We now strap them comfortably snug which controls muscle oozing and acts as a snubber when the patient coughs.

In closing a word will not be amiss in stating that, like any new idea even of value, its popularity has suffered because of poor application. It is, therefore, imperative that sentiment should not be permitted to cloud good judgment until at least its efficiency is established in a given community. By that I mean only the most suitable cases should be attempted first so that a background of confidence with the laity may be secured.

DISCUSSION

John B. Crouch, Colorado Springs: The essayists have covered these rather common conditions that arise during the course of a pulmonary tuberculosis. Cold abscesses of the chest wall are not at all uncommon. They usually occur in the chronic fibroid type with many adhesions and are practically never seen in early cases without adhesions. At the present time I have under treatment a man who, about eighteen or twenty years ago, had an operation for a cold abscess of the chest wall. This was healed for many years. At the present time he has a cold abscess in the old scar on the chest wall. Undoubtedly the best treatment is heliotherapy, and aspiration only if absolutely necessary.

I am rather conservative regarding induced pneumothorax. That is, I think the patient should be given every opportunity to recover with rest together with hygienic and dietetic treatment. If

we are conservative, we are apt to have more complications. That is, complete collapse is less likely to be obtained and there are more likely to be effusions. These effusions usually arise from small abscesses on the peripheral surface of the viscera pleura. If the effusion occurs during the course of pneumothorax in any considerable amounts, I practically always aspirate. I believe, if effusions are aspirated the fever is less likely to be high, the effusion absorbs more rapidly and the collapse is more easily maintained. Effusions that become rapidly purulent with extreme prostration are usually due to mixed infection, and I think when of this type should be aspirated early.

I have had very little experience with early operation in empyema and am unable to state its value. I do know that an occasionally empyemata is absorbed, that these people live a fairly useful life—often for a long time. Don't get the idea that I don't believe in pneumothorax. I most certainly do and believe it is a treatment that has come to stay and is the only new treatment in the last fifteen years of any significance. Extra pleural collapse is a severe and mutilating operation with considerable shock. It has been improved very much in the last few years by being done in several stages but even this does not remove shock entirely. The failure of this operation is the inability to collapse the apex. The base of the lung is usually very easily collapsed but the apex of the lung is difficult to collapse even with any operation that is in vogue today.

Cardiac inefficiency is probably best determined by blood pressure and the rate of the pulse. These people often have a systolic blood pressure down around 90 and a pulse around 120 to 140. Undoubtedly there is then much cardiac embarrassment.

I still use codein—not in large doses—in the treatment of hemorrhage. I believe that codein quiets the patient, allays the cough which is frequently the cause of continued hemorrhage, and doesn't have to be used in sufficient amounts to abolish the reflexes.

Dr. Bronfin (closing): I think it is wise to be somewhat conservative in the application of pneumothorax, but there is danger in being too conservative, and wait until the patient is desperately ill. I believe that the era when pneumothorax was resorted to as a last resort measure has passed. The aim of present day phthisiologists is to carefully select the cases and give pneumothorax before extrapulmonary complications set in.

Effusions which develop rapidly are usually of the mixed infection type; that is why we advocate early operative interference. When empyemas develop rapidly, within a week after spontaneous pneumothorax, the operation should be undertaken as soon as the patient is over the shock, because the longer the lung remains collapsed, the less the chances for its reexpansion. It is upon the reexpansion of the lung that we depend considerably for the eventual obliteration of the empyema cavity. On the question as to whether an apex alone can be collapsed surgically, I will leave this to my colleague to answer.

Dr. Lowen (closing): One point Dr. Crouch brought out is something I did not have time to talk about, namely involvement of the cartilage. This structure is one difficult to cure. Where the disease has remained in the rib alone, resection is curative. On the other hand the more cartilage one attempts to remove the more involvement takes place. Now about early operations in cases of tuberculous empyemas, Dr. Crouch mentioned, as I did, that many of them go along in-

definitely and apparently do well, but ultimately, in most cases, the show down comes for operation. Success in surgery, as in every other field is dependent on getting in early and avoiding complications. When these cases finally come for help they not only have empyema but massive secondary tissue changes. It is difficult to eliminate these complications, so why shouldn't we consider early intervention? As far as shock and mutilation from extra-pleural thoracoplasty, I can't quite agree with Dr. Crouch. With clothing on, the deformity is not noticeable and when stripped the chest shows a moderate shortening of all diameters on the affected side. The shock is considerable, of course. Some of the patients do not survive. For that reason the two or more stage operation is advised. Every one doing this work feels the end results are surprisingly good, both operative and curative.

Very few patients, if properly chosen, will die from the operation. As to poor compression of the apex, following thoracoplasty Dr. Crouch is correct. Some of these are hard to obtain by the posterior route alone, having to supplement the compression by the anterior route. Also where pneumothorax fails to collapse the cavity a partial thoracoplasty over the area may accomplish it. In one such case referred to by Dr. C. T. Burnett, the first to seventh ribs were resected and the cavity collapsed very nicely with marked clinical improvement. Because a cavity will not collapse with one type of operation is no reason for refusing thoracoplasty. Such a patient cannot be a useful citizen unless the cavity is collapsed which, as already pointed out, can be done by further operative measures.

PROGRESSIVE DOCTORING

I took some dope, to make my head quit aching; it did the trick but set my stomach wrong; and that old organ, all the by-laws breaking, just raised high jinks, and bucked the whole day long. I took some dope to get my stomach working as in the days when it had fair renown; the dope did that, but set my muscles jerking, until it took three men to hold me down. I took some dope to make my muscles steady; they soon calmed down, and started cutting hay; but then my liver acted up, already, and threw a fit, and spoiled my happy day. I took some dope to quell my liver's riot—some bitter stuff disguised with cherry jam; no sooner was that liver lulled to quiet, than shooting pains whizzed through my diaphragm. I took some dope—but why prolong the anguish? I'm taking dope, for this disease and that; there's something new each day to make me languish, one day a boil, the next an aching slat. Pursuing health, all kinds of pills I swallow, the more I take, the more I have to buy; each pill demands another pill to follow—hand me the bitters, for I'm getting dry.—Walt Mason.

Coal mine accidents in the United States during the first half of 1925 resulted in a loss of 1,089 lives or 239 less than during the first six months of 1924, and the number of deaths per million tons of coal mined was 3.89, as compared with 4.77 last year, a reduction of about 18 per cent.

There were 104,550 nurses and nurse attendants in American hospitals in 1923, of whom 26.6 per cent were graduate nurses, 52.3 per cent student nurses, 12.9 special nurses, and 8.2 per cent nurse attendants.

A PRELIMINARY REPORT UPON THE TREATMENT OF DIPHTHERIA CARRIERS BY ROENTGEN RAYS*

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In the City of Denver during the year 1924 there were 774 cases of diphtheria with 57 deaths as compared to 1,357 cases in 1923 with 79 deaths. This reduction of cases by about half was due to stricter quarantine rules and more stringent release methods.

The work of health boards to reduce the number of cases and deaths of diphtheria consists in first, preventive work—injections of toxin antitoxin mixture to large numbers of school children, and subsequent Schick testing to determine the number still susceptible and another round of 3 injections where indicated; and second, immediate isolation and treatment of those affected with diphtheria whether with an acute attack or as carriers of the Klebs-Loeffler bacilli. Carriers may be individuals who have had diphtheria and remain positive a considerable time after the disappearance of the membrane or show a typical Klebs-Loeffler bacillus in the nasal or throat secretions without clinical signs or history. Therefore an important function of Health Board is a reduction in the number of diphtheria carriers.

With all the prompt treatment of diphtheria cases with large doses of antitoxin and concentrated work of districts in giving toxin antitoxin mixture, diphtheria is still one of the most vexing and annoying problems the health officer must contend with because of the carrier. A certain percentage of carriers remain positive, harboring diphtheria bacilli for a lengthy period in spite of or sometimes because of all measures known to science being employed singly or collectively to clear them up.

The isolation of the patient for weeks and occasionally months at a time is a hardship the results of which may be far reaching enough to change the whole course of their lives. A youngster in beginning high school is kept in quarantine a semester loses heart

because of being so far behind his friends, can't be influenced to go on but gets a job and becomes one more person turned out on the world unprepared and untrained.

Adults lose their positions after a reasonable period awaiting their return to work and the social life of the whole family is changed as a consequence. They become an added burden to the charity departments of the city until readjustments can be made.

More fortunate families find the expenses of quarantine, physicians' bills, and tonsillectomies a severe drain on their pocket-books. Isolation hospital appropriations could be greatly reduced were we able to cut patient days to a more reasonable figure.

Aside from the economic problem the life of the conscientious health officer is made miserable and the physician in charge of the case is at his wits' end as to what to do next.

Regardless of the seeming injustice to the individual, isolation must be carefully enforced to protect the public from exposure.

Hitherto in the treatment of carriers we have had recourse to two methods, antiseptics and tonsillectomy. At the isolation hospital we have turned hopefully from one throat and nose application to another, hot irrigations of salt and soda solutions, Fuller's earth, silver nitrate, argyrol, mercuriochrome, gentian violet, ichthyol, the physiological effect on the patient being a big factor in stimulating our diligence. We must do something. The antiseptic used does not seem to figure particularly as long as it is sufficiently mild and non-irritating, strong irritating solutions only improving the media for the bacilli and lengthening the period the patient remains positive.

With the advent of Chlorine gas for the treatment of coryza, where, if taken early, it seems to be most efficacious—we again saw possible relief looming ahead. Dr. Kenneth Allen very kindly loaned us his new apparatus, a treatment room was fitted up and a series of cases given an hour's treat-

*Read at the annual meeting of the Colorado State Medical Society, Colorado Springs, September 29-October 1, 1925.

ment every day. A few cases promptly got their negatives and were released which encouraged us immensely, but after running a large number of cases we concluded that it was coincidence for the average quarantine period was not reduced.

Tonsillectomy has been a method of choice and the one capable of a good percentage of cures, but it is not always possible to get the consent of the parent particularly when you can't guarantee that the patient will be cured, it may be contra indicated for other reasons; and finally the site of infection is not always in the tonsil but in the nasal and post-nasal region.

The roentgen ray offers a third avenue of escape, and from the work done by other roentgenologists as well as the series of this 39 promises to be most efficacious. It is absolutely painless, requires no anaesthetic, reduces lymphatic tissue difficult to eliminate by any other method penetrating to all recesses of the nasal and post-nasal passages, with no danger to the patient. Some of the cases treated still showed positive nose or throat morphologically but negative virulence test.

No. 279 was a young man working in a national bank, there were three cases of diphtheria in his department, whether he was a contact to the other two or their source of infection could not be determined. The bank was most generous and spared no expense in the boy's treatment, several physicians and nose and throat specialists were called in. The tonsils were removed. At the end of 81 days he was given his first x-ray treatment and once a week thereafter until he had received his required number. At that time a guinea pig test was done and the bacillus proven non-virulent. He was released but another virulence test done at the request of the bank two weeks later as an added precaution and still found non-virulent. He has been working since that time apparently harmless.

No. 274 was positive 70 days until her first x-ray treatment a tonsillectomy had been performed and mild antiseptics used. She remained positive another 72 days when a virulence test was finished found to be non-virulent and the patient released. No further

cases have been traced to her. Possibly had a virulence test been done earlier she might have been released at an earlier date.

Cases 275, 276, 277 are children living under very bad home conditions, 276 having been positive off and on for 10 months. At one time was released from the hospital on three negative cultures and soon after going home gave an acute attack to his little sister, 275, who cleared up 13 days after x-ray treatments. The persistent 276 has a complication in diseased sinuses which have made the x-ray treatments appear to be of no avail. Believe that virulence tests now being done on some of these cases will prove negative.

However, including all these obstinate cases, 90 per cent became negative during the period of observation and treatment a most encouraging result. It will be interesting to proceed with another series of cases given routine x-ray treatment as soon as the membrane has cleared and the patient fit to be subjected to treatment. The statistics from these cases will no doubt be still more gratifying.

There has doubtless been no less than 30,000 pairs of tonsils treated by Roentgen rays and radium since Murphy, Witherbee, Craig, Hussey and Sturm¹ of the Rockefeller Institute reported in 1921 the joint study of forty-six cases of diseased tonsils treated with x-rays.

These co-workers used fairly well filtered x-rays, directed at the faucial tonsils, and proved four points as follows:

- (1) That the treatment brought about a definite diminution in the size of hypertrophied tonsils.

- (2) That with such atrophy there was evidence of less occluded debris in the crypts, with

- (3) a diminution in exudate and sepsis particularly in reference to hemolytic streptococci,

- (4) without producing undue reaction either locally or constitutionally.

Many other reports of the use of x-rays or radium in the treatment of diseased pharyngeal lymphoid tissue have appeared, but without adding materially to the data given above.

On the whole the use of radiation methods to cause a retrogression of pharyngeal lymphoid tissue, has been more or less satisfactory, depending, apparently altogether, upon the selection of cases and the technique of treatment.

It occurred to us, that a very good clinical test of the efficiency of the radiation treatment of tonsils could be made by subjecting diphtheria carriers to such treatment.

If such patients were cleared of their infection the method might be recommended. If the tonsils continue to harbor diphtheria bacilli, in the absence of other pathology, then the radiation method of treating hypertrophied tonsils could **not** be recommended even though lymphoid tissue **did** disappear from the pharynx and naso-pharynx.

The treatment of diphtheria carriers by Roentgen rays was first mentioned by Witherbee in 1921 and later Witherbee and Remer³ in 1922.

Hickey⁴, Professor of Roentgenology at the University of Michigan (and Meader, Director of the Medical Department of the City of Detroit), reported thirty-four diphtheria carriers treated with Roentgen rays in 1922. Of the nineteen "throat positive" cases, fifteen or 70 per cent were reported "cured".

In September, 1922, Kahn⁵ of Toledo reported 185 cases with a total of 79 per cent "released on negative cultures" following treatment.

Kahn⁵ reports an additional series of twenty-six cases with about the same results in February, 1924.

Neither Hickey nor Kahn state how long these cases were under observation nor the length of time they remained positive after the first x-ray treatment.

The method owes its feasibility to the fact that pharyngeal lymphoid tissue is probably one of the most radio-sensitive tissues of the body.

We desire to report to you briefly upon thirty-nine cases treated within the past year, with very well filtered x-rays generated at an **actual** voltage of 200,000 corrected to a sea level reading.

The amount of radiation so given is stated

in milliamperere minutes on the accompanying chart.

In no case was there given more than 60 per cent of an erythema skin dose, which is just sufficient to cause some dryness of the mouth, due to the effect on the parotid, and in some cases a very slight cervical lymph adenitis.

In this series we have had two febrile reactions, simulating an acute tonsillitis, following treatment, and these might easily have been coincidences. Neither of these lasted more than one week.

All cases that have been treated by us are described in the accompanying chart.

We had every reason to believe that many of them were unsuited for Roentgen treatment on account of having additional pathology in the nose or throat, which we knew was not amenable to x-radiation alone.

These complications were as follows:

- 2 cases, nasal polypi and sinus infection.
- 1 case, abscess of nose draining through left nostril.
- 1 case, hypertrophic rhinitis with remarkably deviated septum.
- 1 case, bilateral otitis media.
- 1 case, saddle nose, probably luetic.
- 2 cases of early pulmonary tuberculosis.

Of the entire series, however, only 4 have remained positive, 80 and 85 days, September 25th respectively, after the first x-ray treatment. One of these is the case of double otitis media, which shows virulent organisms in the discharge from the ears. The other is one of three children and mother who were positive. The children were treated; the mother refuses treatment and remains positive. Two of the children are negative at this time (September 25th) but may be positive again next week.

If these two families are excluded from the figures and the case of otitis media excluded, then there is 100 per cent recoveries, in the three months' period of treatment and observation.

After eliminating incomplete histories, of cases known to be negative and those cases having associated complicating pathology, there are left 23 cases for consideration with a total average positive culture period of 62.2 days. All of these 23 cases became neg-

ative after the first x-ray treatment in an average of 9.7 days.

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⁵Kahn, Dalton. Treatment of Diphtheria Carriers with the Roentgen Ray. Amer. J. of Electroth. and Radiol., 1922, Vol. XL, p. 287-288.

⁶Kahn, Dalton. The Treatment of Diphtheria Carriers by Roentgen Radiation. Amer. J. Roentgenology, Vol. XII, No. 4, p. 343-347, October, 1924.

DISCUSSION

F. B. Stephenson, Denver: I want to question Dr. Withers a little about his technique, and ask him if he will explain why he feels that the extremely high voltage, in tissues which are not so deeply seated as an abdominal lesion would be, is preferable to a voltage of less degree which presumably would reach the tissues in a satisfactory way, with proper filtration, of course, to protect the overlying tissues; and also whether he feels that in those treatments there may be any danger of affecting the pituitary gland, and whether the thyroid and parathyroids are protected in his treatment?

O. R. Gillett, Colorado Springs: I don't know about the use of x-ray in diphtheria carriers. We have had no experience here with it at all. I don't know why Dr. Webb put me on to discuss this paper unless he wanted me to come down here and learn something about it. We have treated a very few cases with the Light with some little success. I have been very much interested in diphtheria and its prevention, and I think more emphasis should be made on the taking of cultures. We have had very little diphtheria here. It may be just good luck, but we have had exceedingly few cases, not over five or six this year. We are very busy taking cultures where we get one or two cases, which I think is important. Emphasis should be laid upon it, and the medical profession should stand back of it. When we get two cases in a room in the school, we never hesitate to take the whole school, quite frequently a school of five or six hundred, and it is quite a task to do it, but in every instance we have done it and stopped the presence of diphtheria. Cases will come along one or two at a time, and until we take wholesale cultures we have never been able to get rid of it. That has nothing to do, perhaps, with the use of the x-ray, but it has to do with the handling of diphtheria, and I think we should insist upon our health officers carrying out such methods. It is not 100 per cent perfect; it does fail occasionally. Even the culture will fail. However, it is a wonderful help, and I wish them success in hunting for a means of getting rid of these diphtheria carriers. They lay it on the health officers often because they don't get well. Perhaps some method will be found of getting rid of these germs.

Dr. Withers (closing): I will say what I can in

answer to Dr. Stephenson's query. I use a well-filtered high voltage radiation for two reasons. The first is that it is easier for me to use; the second is that with a well-filtered dosage much more of the radiation reaches the depths. If we use half a millimeter of copper and a millimeter of aluminum, we are giving a depth dose of 29 to 30 per cent of the total radiation on the skin. If we use 140,000 volts with a quarter of a millimeter of copper and a millimeter of aluminum, at a distance of 30 centimeters we can only give 19 per cent at the same depth of tissue.

We will say the minimum dosage required to give us retrogression of lymphoid tissue is from 30 to 50 per cent of an erythema dose.

To put it another way, if we can get a sufficient dosage of radiation into the pharynx without giving the parotid more than 50 per cent of an erythema then we will do no damage to the parotid gland.

If we use 140,000 volts as above stated, we would have to give the parotid twice as much radiation as when using high-voltage, well filtered Roentgen rays to get the same dose into the pharynx.

The other question was, "What will be the danger to the pituitary gland, and the thyroid and parathyroid glands from this treatment"? I think it is beyond the realm of probability that any possible harm can result to these glands, because they are out of the field. The pituitary probably receives from 5 to 10 per cent of this skin dose when treating tonsils. We have given the normal pituitary up to 100 per cent of an erythema in cross firing tumors of that vicinity without noticing any permanent effects in function.

We use a portal of entry for x-rays of 6 to 10 centimeters diameter and we are quite sure that we can center both tonsils in such portals.

I REMEMBER

I remember, I remember, the place where I was born,
The window where the city's noise came rumbling in at morn,
The iodine and ether and every other smell,
You can't be born at home these days, it really isn't swell;
But Grandma says her mother was born up on a hill
Ten miles from any doctors, and she is living still,
And my great-uncle's uncle will be ninety-six in May,
And he was born upon a ranch from doctors far away.
And Nursie says her Grandpa, the one that went to sea,
Had triplets on the ocean that lived to ninety-three;
And when she's asked where I was born she gives a sort of groan,
And says, "Was that the doorbell or did I hear the phone?"
—Beatrice Hereford.

Public speakers are always quoting famous men, but never have I heard one quote a lady. To refresh the minds of married men, I am going to ask, who among you can give the name of that great American woman who said, "I-want-a"—"I have nothing to wear" or "Who's driving this car?"

The casual organism of one type of cancer was isolated and photographed by means of the ultra-microscope, according to the claims of English workers.

THYMIC ENLARGEMENT*

EMANUEL FRIEDMAN, M. D.,
DENVER

INTRODUCTORY

In 1829 Kopp¹ pointed out that an enlarged thymus may be responsible for disturbances in respiration. His view was accepted and prevailed until 1858, when Friedleben² challenged the correctness of this observation and denied the possibility of the thymus gland giving rise to thymic asthma, or to any other pathologic manifestation. In turn this view held sway for three decades. Despite the enormous amount of experimental work performed in the last thirty-five years, the exact relationship of the thymus gland to the human economy has not been definitely established. Conclusions are diverse and frequently conflicting. The work of Klose and Vogt³ attracted deservedly greater attention than that of their contemporaries. They noted, after a lapse of two to three months following the extirpation of the thymus in puppies ten to fourteen days old, a decrease in vigor, softness of bones, voracious appetite, and impaired intelligence. Two or three months later there occurred an abrupt decline in weight, weakness increased, the intelligence became more strikingly obtunded and marked predisposition to spontaneous fractures and to infections became manifest, and death followed usually in about one year. If thymectomy was deferred to the third or fourth week of life, death still ensued, but usually not until the third year. And if the gland was not removed until the fifth or sixth week of life, such intervention caused no symptoms or only those of a transitory character. The authors inferred that in animals older than four weeks it is impossible to effect a complete removal of the gland; the portion remaining displays a tendency to rapid regeneration. The thymectomized animals showed among other changes hypertrophy of the spleen, thyroid, pancreas and genital organs. Basch in 1902 upon very careful research found that the changes initiated by thymectomy were decidedly less spectacular than those reported by Klose and he believed

them to be allied to rickets. The findings of Matti², published in 1911, were in substantial harmony with those of Klose; and he too regarded the thymus as essential to life and found its removal to exercise a profound effect upon the body growth. Abelous, Hammar, and Ballard in 1896 expressed the opinion that the thymus neutralizes the toxins formed in the course of metabolic activity. Schaffer⁴ believes that the thymus exerts an influence upon the chemistry of the ductless glands. Olkon found, upon injecting thymus tissue, loss in weight, changed behavior, hyper-excitability of nerves and muscles; and with larger dosage, sluggishness, dyspnoea and convulsions. Hammar⁵ held the view upon the basis of wide clinical observation that the thymus, contrary to the usual belief, continues to function even until old age. In this he is supported by Waldeyer. A large group of investigators as Tarulli in 1894, La Monoca in 1897, Fishel in 1905, and in more recent years Pappenheimer and Renton and numerous others failed to find any effects attributable to the removal of the thymus gland, and inferred that it was not essential to life. Park and McClure³ expressed the conviction after a critical and most exhaustive survey of the important experimental work done in connection with the thymus that the symptoms ascribed to thymic deprivation are without doubt the outcome of adverse environmental influences, such as infections, confinement, and faulty feeding. Their own carefully executed and properly controlled experiments strengthen this theory. They conclude that the thymus is not indispensable to life and its removal does not affect growth or nutrition, nor cause any of the other changes described by Klose.

Anatomy: The thymus is situated in the upper anterior mediastinal space. Noback⁶ found it cervico-thoracic in location in 80 per cent of observed cases. Its weight is greatest at birth,⁷ shows a very gradual diminution in the first five years of life and a more pronounced decrease thereafter. Hart, Scheidde, and Lubarsch⁸ represent its weight at birth as 12 grams, 6.6 grams in the

*Read at the annual meeting of the Colorado State Medical Society, Colorado Springs, September 29-October 1, 1925.

first year, and 8.1 grams at two years. Friedleben's⁹ figures are distinctly higher, being 14 grams at birth, with increase to 21 grams at 9 months, 27 grams at two years, with no appreciable change until fourteen years, when steady involution begins, and at 35 its weight is only three grams. These figures bear out the statement of Finkelstein⁸ and others that the normal thymus shows a wide range in size. It is generally accepted that a gland weighing over 15 grams is pathologically enlarged. Noback⁶ found the thymus overlapped by the right lung in all cases examined, and by the left in 80 per cent. The right ventricle is overlapped by the right lobe in 65 per cent and by the left lobe in 80 per cent of the cases. Posteriorly the thymus is closely connected with the pericardium enveloping the base of the heart and great vessels, the left vagus, superior vena cava, and the left innominate vein.

Cause of Symptoms: It is generally conceded that the cause of thymic asthma and other symptoms usually linked with the thymus is due to pressure of this gland upon some of the contiguous structures. It may be upon the trachea, the large vessels, nerves or the heart. This hypothesis appears reasonable when it is realized that the superior opening of the thorax in a young child is only two centimeters in diameter and that a hyperplastic or an acutely engorged thymus may appreciably exceed in thickness this dimension. Furthermore, Rehn² in 1906 demonstrated that excision of a portion of an enlarged thymus will promptly relieve alarming symptoms; and Hedinger³ observed unmistakable signs of pressure in 18 cases of thymic death. Bircher¹¹ found in at least three cases the trachea compressed to such degree as to almost completely obliterate its lumen. On the other hand not a few find it difficult to subscribe to this view, because the gland is frequently not enlarged in individuals with thymic asthma or even in those who succumb to status lymphaticus. That pressure alone does not adequately account for the symptoms in every case is admitted and much speculation has been indulged in to account for disturbances in such cases. Hart, Schmidt, and Rachford and others believe that hyperplasia of the thymus causes

retention of the products of tissue metabolism and these in turn may cause sudden death. Finkelstein⁸ advances the thought that the enlarged gland may cause enlargement of the heart compensatory to compression of the large veins. In the judgment of Svehla death may be due to exaggerated absorption of thymic substance. Beneke pointed out that in the presence of compression, the forcible throwing backward of the head may precipitate instant death. It is not adequately appreciated that the size of the thymus gland as determined at autopsy does not always correspond to its dimensions during life.

Frequency: Liss¹³ in 1922 examined roentgenologically 119 new-born children, apparently free from thymic symptoms, within 48 hours after birth, and 42 per cent of these showed a transverse enlargement. This high incidence rapidly diminishes after birth. He found four out of forty that were followed had undergone retrogression in first month; the greatest decrease in size occurred during the first few months, and only in a relatively few did the enlargement persist into the second year. Benjamin and Lange¹⁴ encountered in the course of one year, among 225 children with various complaints, eight and one-half per cent with thymus enlargement. Their ages ranged from infancy to well past the early years of childhood. Greenthal's⁷ figures disclose among 2,000 children from three days to twelve years old, four and one-half per cent with clinical evidence of thymus enlargement; of these 35 were x-rayed, and one-fourth showed enlarged shadows. He observed that the enlargement was much more frequent in children with congenital malformations, particularly in those with hare-lip and cleft-palate. Blackfan and Little¹⁵ found among 60 children from five hours to one year of age, with the majority under two weeks, 48 per cent with enlarged thymus as determined by percussion and x-ray; not one of these presented any thymic disorder.

Symptoms: In the very large number of cases in which an enlarged thymus can be demonstrated only exceedingly few present any symptoms. In the experience of some the condition is said to be more frequent in

the stocky, well nourished, short-necked child, but this is denied by others who find it just as often in the marantic. The condition usually becomes apparent soon after birth; in others not for several weeks or months; and Boyadjeff¹² encountered not a few with the first manifestations at from two to ten years of age. An unsuspected thymic enlargement frequently makes its presence first apparent upon the supervention of an infection, particularly of the upper respiratory tract. And conversely the condition seems to predispose to this type of infection. Infections in those with a persistent thymus are attended with a relatively high mortality. Sex apparently plays no role. The most important symptoms arise in connection with respiration. Friedlander¹ and also John Howland¹⁷ describe two types of thymic affection. In the one, more commonly encountered in the very young infant, there exists a continuous form of dyspnoea, rather mild in character, which at variable intervals may become worse and culminate in a suffocative attack, accompanied with intense cyanosis, and rarely may prove fatal. The second, or the intermittent type, is seen in infants several months old. These, while apparently enjoying good health, are suddenly overwhelmed by an attack of strangling accompanied with intense cyanosis and occasionally with generalized or localized convulsive movements and hyperpyrexia; the paroxysm may intermit in a few moments; or it may last for hours or days and terminate fatally. Occasionally the attack is characterized by alarmingly rapid breathing, with or without hyperpyrexia, and without evidence of respiratory distress. Stridor is at some time present in nearly every case. It is always inspiratory but may also be expiratory. At times it is so loud as to be heard at a considerable distance and may prove exceedingly annoying to the attendants. It may be relieved by flexion and increased by extension of the head. Stridor is usually absent during sleep and is almost invariably aggravated or provoked by mental or physical exertion. It is best heard during crying and in some during the act of nursing. It resembles the crowing peculiar to pertussis or the sound produced in ca-

tarrhal croup. Dysphagia, hoarseness¹², brassy cough¹⁵, and cyanosis⁶ limited to the head, neck and upper extremities are occasional manifestations. Benjamin¹⁴ has observed children free from respiratory symptoms suddenly seized during the night with paroxysms of severe coughing or choking, and quite well again in the morning. These may recur two or three nights in succession. In 1888 Paltauf described a condition which he termed status thymico-lymphaticus, which is believed in some manner to be allied with thymic hyperplasia. The enlarged gland is generally held to be but one of many accompaniments of this constitutional state. Its chief characteristics are a pale skin, excessive development of subcutaneous fat, hypoplasia of the heart and vessels, and hyperplasia of all lymphatic nodes. The subjects are unduly sensitive to all morbid influences and respond in an unexpected manner to every illness and are prone to develop alarmingly high temperature. Many manifest during early childhood spasmophilic symptoms. Perhaps the most outstanding characteristic is the liability to sudden death in the midst of apparently perfect health or during an infection pursuing a seemingly benign course. Others are abruptly attacked as if by an acute intoxication, with deep, hurried respirations, very high fever, spasmodic contractions, unconsciousness, and death may supervene in a few hours. Undoubtedly many cases of birth asphyxia, instances of sudden deaths during anesthesia or trifling operations, or mild injuries, owe their origin to this unfortunate peculiarity of the physical make-up.

The enlargement of the thymus gland is determined by percussion, the x-ray or the fluoroscope. Percussion should be practiced according to the suggestion of Blackfan and Little¹⁵ with the child in a horizontal median posture, the head resting on the occiput and in semi-flexion, arms clasped about the head. Any change from this position may cause a change in the percussion note. The area of thymic dulness¹ is irregularly triangular in shape with the base at the sternoclavicular junction and the apex at the second rib and the sides extending but slightly beyond the margins of the sternum, a little more so to

the left, and the dullness merges below with that of the heart. Blackfan and Little regard the thymus within normal limits if its boundaries are not over seven-eighths of an inch to the left and not over one-half of an inch to the right of the mid-sternum. Except in the hands of the expert the percussion findings are not dependable. The x-ray offers distinctly more reliable evidence as to the size of this gland and the same technique observed in percussion should be followed. The shadow appears in the upper mediastinum, is continuous with that of the heart or appears as a superimposed broad cap. Greenthal⁷ finds a close parallelism between the size of the gland and the x-ray shadow and regards an enlarged thymus as the most dependable means of recognizing status-thymico-lymphaticus, and in this he is supported by most observers. Others caution against interpreting every increased shadow in the upper mediastinum as evidence of an enlarged gland and point out the various conditions which influence its size. Gerstenberger¹⁰ stimulated by the observation made in 1906 by Rehn, found that during expiration the shadow is considerably wider than during inspiration. Parsons¹⁸ says that the size of the gland varies with systole and diastole as it does also with the degree of intra-abdominal tension. Benjamin and Lange¹⁶ state that the shadow varies from time to time in the same patient. Others are frankly undecided whether to ascribe an enlarged shadow in the mediastinum to actual increase in the size of the thymus or whether merely to distention of its blood vessels, or whether in many instances it may not be a distended vena cava or right auricle that is responsible for the increased width. It should be duly emphasized that a normal shadow does not inevitably preclude the possibility of thymic enlargement. The x-ray reveals only the lateral dimensions of the gland. An increase in its antero-posterior diameter is infinitely more likely to cause pressure symptoms and increase in this direction cannot be disclosed by the x-ray or by any other physical means. Moreover let us remember as Boyadejeff¹² admonishes, that even a normal gland may conceivably exert pressure upon an adjacent

structure and engender respiratory or cardiac distress.

Differential Diagnosis: An enlarged thymus may coexist, indeed frequently does, with other conditions which give rise to normalities of respiration. The following may closely simulate an enlarged thymus. Cerebral birth-injury, congenital heart lesion, congenital laryngeal stridor, catarrhal laryngitis, laryngeal diphtheria, laryngospasm, papilloma of the larynx, foreign body in larynx or oesophagus, retropharyngeal or peritonsillar abscess, adenoids, whooping cough, bronchial asthma, enlarged tracheo-bronchial glands, dilated heart and acute infections with hyperpnoea and hyper-pyrexia. A consideration of the age of the patient and time of onset, the course pursued and physical findings will in most instances enable one to reach a correct conclusion. Occasionally neo-natal whooping cough lacking the characteristic whoop and associated with apnoea may render the differentiation exceedingly difficult, as may also the presence of adenoid vegetations, and also masturbation in infancy. When in doubt, it is helpful to resort to therapeutic test of Pfahler. It is his belief that any form of obstruction that does not yield promptly to the x-ray is assuredly not due to an enlarged thymus.

Treatment: Until quite recently operative interference was the only recognized means of attack. In 1896¹ Rehn and Konig performed the first operation consisting in the elevation of the thymus thereby relieving the threatening pressure. 'In 1897 Konig, and Bernicker in 1899, performed partial thymectomy usually with good, immediate results. By 1913 fifty operative cases had been reported, however, with a mortality of thirty-three and one-third per cent. Friedlander¹ in 1904 encouraged by the results of Heinecke's experiments on the action of the x-ray upon lymphoid tissue, treated successfully and without mishap a two-month old infant suffering from a severe and typical attack of thymic asthma. By 1913 only thirty cases had been reported. In that year Lange and Friedlander¹ showed that it was possible to effect by means of the x-ray any degree of fibrosis of lymphoid structures,

depending upon the frequency and duration of exposure. Because of the simplicity of this treatment, freedom from danger, and the certainty of a favorable outcome, it has almost completely superseded surgical intervention, though here and there one hears a note of warning as by Bircher¹¹ and Olivier concerning the danger of arrest of growth and liability to the development of idiocy from the use of this agent. This is undoubtedly an exceedingly remote possibility and should not act as a deterrent when need arises for the institution of treatment. If symptoms are urgent daily exposures are indicated. If not, intervals of four or five days are preferred. In the experience of Blackfan and Little¹⁵ three weekly exposures will almost invariably effect a cure. Occasionally a second series may be necessary. Pfahler¹⁴ treats once in four weeks and finds that three to five such treatments suffice. Radium is used far less frequently, probably because of a relative unfamiliarity with this agent and because it is not as available as the x-ray. However, its advocates find it more convenient, and maintain that it brings about a more prompt and more lasting arrest of symptoms. The results of Blackfan and Little, who in 200 cases of thymus asthma succeeded in curing all but six by one series of treatment, is the usual experience; and Pfahler looks upon the x-ray as specific for thymic asthma. Many advise that every child displaying symptoms, however mild, which are ascribable to the thymus should be treated. Some⁷ insist that every child with an enlarged thymus even in the absence of symptoms requires treatment. This has become the practice in some surgical and medical clinics, because those so treated are rendered less liable to thymic death and are better fortified to withstand the strain of severe infections and operations, and to cope with the hazards of civilized life. Finkelstein⁸ on the other hand does not favor routine treatment because of the well recognized tendency toward early physiologic involution.

The following have been selected from a number of cases of thymic asthma which have come to my attention in recent years:

Case No. 1. Alfred W., 4 months old; examined Aug. 22, 1922. The first born; instrumental

labor; no birth injury sustained; weight at birth 7 lbs. 4 ozs.; normal development.

Breast fed for two weeks when complemental feeding was instituted. During the early weeks would remain at breast one to one and a half hours. Progress was otherwise normal and nothing unusual was observed until about Aug. 22, 1922, when patient was four months old. At this time the mother's attention was attracted by frequent wheezing. This was noticed only while child was awake and chiefly when excited; never during sleep or when crying; no other respiratory difficulty was detected.

Examination disclosed a well nourished, normally developed child, 4 months old, weighing 13 lbs. 6 ozs. Wheezing on inspiration noted. When crying inspiration was high pitched, but not crowing in character; no thymic enlargement on percussion; voice clear; no cyanosis; no enlargement of glands or tonsils; no evidence of rickets.

Oct. 5. Dr. Stephenson had found distinct enlargement of thymic shadow for which child had received to date three treatments at five to ten-day intervals. Improvement set in after the second exposure, but this was not maintained following the third application of the x-rays. Moderate stridor noted on inspiration only when excited and intermittently in the course of nursing. It is loud and rasping in character.

Dec. 3, 1922. Has had six treatments altogether, the last one three weeks ago. Wheezing is decidedly less marked. Examination disclosed normal progress in development and growth, and only occasionally stridulous respirations heard.

Jan. 5, 1923. Developed an upper respiratory infection with double suppurative otitis media with severe course but favorable termination, with no return of wheezing.

Jan. 2, 1924. Influenzal attack without recurrence of stridulous breathing.

April 29, 1925. Normal in every respect; never wheezes; no evidence of rickets; fluoroscopic examination shows no thymic enlargement.

Case No. 2. Robert B., three months old; younger of two children; labor normal, unassisted; baby required resuscitation; behavior normal at the end of fifteen minutes; no abnormalities noted; birth weight 6 lbs. 5 ozs.

Mother is tuberculous, with the infection quiescent since one year.

Baby was breast fed for three weeks, when breast was refused and artificial feeding instituted.

Baby developed normally, vomiting had been frequent and of moderate severity. Breathing is labored since birth and growing progressively worse; respirations become more noisy when child plays and nurses and not infrequently present also during sleep; occasionally cyanotic when cries; no discharge from nose; no cough; mouth usually open; is constipated; sleeps poorly and nights are quite restless.

Examination shows a well developed, well nourished infant, weighing 11 lbs. 4 ozs., with firm musculature and normal turgor, displaying much vivacity and evident enjoyment of the examination; is very easily startled. Mouth is kept open; no evidence of enlarged tonsils or adenoids. Respirations are exceedingly rapid, never less than 90; inspiration is noisy, with slight epigastric depression, and markedly intensified during play; stridor disappears upon crying. Voice is clear. All deep reflexes are exaggerated; Chvostek is not present. Fluoroscopic examination shows no

enlargement of thymus. However an x-ray by Dr. Stephenson shows an enlarged gland.

Sept. 22. Child received two treatments, with apparent improvement. Respirations are only 66, with inspiration less noisy. Fluoroscopic examination shows distinct widening of shadow in region of thymus gland; and there is increased dulness upon percussion.

Oct. 25. Has had three treatments. Breathing is much improved; no longer any stridor during sleep; but is still induced by excitement. Sleeps more peacefully. Still nervous and startles easily.

Case No. 3. Evelyn B., age two weeks; seen by courtesy of Drs. Darrow and Weld, Jan. 26, 1923. Born at term; labor normal; birth weight 7 lbs.

Since birth the infant has had stridulous breathing which has become a great deal worse today; the patient does not cry, nor is there any cough; it nurses without difficulty.

Examination disclosed a markedly emaciated and exceedingly ill infant. Cyanosis of the visible mucous membranes is very pronounced. Inspiration is labored, high pitched, stridulous and accompanied with marked depression in the epigastrium. When the head is flexed backward, the breathing becomes less labored and cyanosis diminishes. Defective aeration of the lungs is evidenced by feeble breath sounds. Heart negative. The roentgen ray showed no enlargement of the thymus, nor any malformations.

The child was removed to the Children's Hospital, where because of impending suffocation Dr. Darrow was obliged to perform a tracheotomy. The child died the following day.

Autopsy showed no enlargement of the thymus, nor evidence of deformity of the larynx.

Comment: Atelectasis, congenital laryngeal stridor, congenital heart lesion, birth injuries, malformations can with reasonable certainty be eliminated. Diagnosis of pathologic thymus is therefore justified upon exclusion.

Case No. 4. Max B., age three weeks. First born after seven months' gestation, normal at birth. Birth weight 5 lbs. 3 ozs. No unusual observations made except physiologic jaundice.

Child was breast fed. Examined May 22, 1923. Appeared normal until two days ago, since when nurses poorly and today has taken almost no food. At frequent intervals child becomes exceedingly cyanotic. It does not cry. Stridor and cough are absent. Fever had not been noted. Child had not vomited and bowels are constipated since birth. Sleep is not disturbed. There had been no exposure to whooping cough.

Examination discloses a small, poorly nourished, premature infant, with marked jaundice, but no cyanosis; marked generalized scaling of scarlatinal character is present. When cries, voice is clear and strong. At frequent intervals face becomes contorted with pain, breathing ceases and infant becomes exceedingly cyanotic. Throat is negative. Heart and lungs are normal. Abdomen is strikingly distended, particularly in epigastric region. No enlarged glands present. There is no evidence of thymic enlargement.

The diagnosis rests between colic, pertussis, laryngo-spasm, cerebral injury and enlarged thymus. Pain due to colic would not cause complete cessation of respirations. Laryngo-spasm is usually an evidence of rickets which rarely makes so early an appearance. Pertussis of 2 days' duration would not lead to spasm of the glottis. Cerebral injury would have betrayed itself at an earlier date.

Infant was referred to the Denver General Hospital for confirmation of diagnosis and for treatment. The roentgenologist reported a probably enlarged thymus. Artificial respirations were frequently required to combat the apnoea. At the end of two weeks child discharged improved. X-ray treatment had not been given.

Case No. 5. Barney G., four months old; consulted Nov. 26, 1923; fifth child; labor normal; born at term; normal at birth; birth weight 5 lbs.

Breast fed for several weeks and then complemented with modified cow's milk.

Mother is asthmatic since childhood, and one sister has likewise asthma.

Nose is obstructed since birth. At the age of two and one-half months child had a purulent otitis media with moderate fever. At that time breathing was very noisy and this would continue for hours at a time. One week ago developed an inflamed throat and since then respirations are so noisy as to be heard throughout the entire house and without any intermissions during day or night. It is worse during feeding. There has been no cough, cyanosis or attacks of apnoea. He appears a trifle better today.

Child is poorly nourished, weighing 9½ lbs. He does not appear uncomfortable. Color is good. Respirations are irregular in rhythm, not labored, and frequently mount to 96. At times inspiration is stridulous and this characteristic disappears upon coughing and crying; it is accompanied by suprasternal and epigastric recession. Voice is clear. Post cervical glands are slightly enlarged. Fluoroscopic examination shows definite enlargement in region of thymus; the shadow is broader during expiration.

Nov. 27. Roentgenologist reports a very wide thymic shadow.

Dec. 4. Wheezing is unchanged, particularly troublesome at night, and x-ray exposures are recommended. These were given at weekly intervals for fifteen minutes, and the third application was followed by complete cessation of wheezing.

Dec. 29, 1923, developed left lobar pneumonia with uneventful recovery with no recurrence of wheezing.

Jan. 8, 1924, no evidence of thymic enlargement on fluoroscopic examination.

Case No. 6. Selma R., age 4 months; the first born of healthy parents; full term, normal labor and normal at birth; birth weight 5 lbs. 8 ozs.; seen March 11, 1925.

Breast fed four weeks and then complemented with milk; since one and one-half months fed exclusively on bottle. Progress has been satisfactory in every respect.

Consulted in order to have feeding regulated. Incidentally elicited the information that breathing is always somewhat labored. Nasal passages are unobstructed. Child is unusually active and since the age of two weeks body is constantly in motion during waking hours. When played with respirations become accelerated but wheezing has not been observed.

Child shows normal development and nutrition; neck is rather short; good natured, alert, happy and craves attention; no enlarged tonsils or glands; heart is negative, but very rapid; respirations vary from 96 to 120, not impeded, and inspiration is slightly noisy; voice is clear; knee jerks show distinct exaggeration.

Fluoroscopic examination shows an enlarged thymus.

The constant activity and heightened excitability suggested a cerebral injury or masturbation. Both affections are satisfactorily excluded.

Fluoroscopic findings were confirmed by Dr. Stephenson.

X-ray treatments were begun and in addition cod-liver oil and calcium lactate administered, and by April 29, patient had had five exposures. However, the character of the respiration and the motor excitability remained unaffected, and fluoroscopic examination still disclosed a large gland.

May 27. Child had completed the sixth treatment. Since two weeks breathing is normal. Progress in growth and development has been normal. Upon excitement breathing still reaches 72 per minute.

Case No. 7. Stewart S., age four weeks; first born, normal labor, birth weight 7½ lbs. Seen May 22, 1925, through the kindness of Dr. Lof.

Breast fed for three weeks, then various foods were tried because breast supply proved inadequate and moreover various digestive disturbances were present resulting in noticeable loss in weight. In the past 24 hours the infant obtained very little food despite much time spent at breast, almost one hour at each feeding.

Since birth inspiratory crowing is present which mother likened to the noise made by a chicken with the roup. The respiration is easily heard at a distance of two rooms, and is present at times during sleep, but more apparent when awake and always intensified during feeding. Voice is clear, respirations are not accelerated, and moderate cyanosis is evident at times when crying. Mouth is usually kept open; no nasal obstruction present. No fever. Sleep is poor.

Normal appearance. Weight 7 lbs. 12 ozs. Cries almost constantly during the examination and this is accompanied by inspiratory crowing which is less evident when lying on the abdomen. During brief, quiet intervals, respirations are noiseless, regular and 60 per minute, unaccompanied by any stridor. Voice is clear. Heart is negative. Percussion elicits slight dulness for a distance of ½ to 1 cm. beyond the left sternal border; knee jerks markedly exaggerated, as are also upper extremity reflexes. Fluoroscopic examination showed a doubtful enlargement.

May 26. Dietetic suggestions were carried out and child is more contented, spends less time in feeding, and shows less digestive difficulty. Stridor is almost continuous while awake and markedly aggravated on crying and feeding; occasionally holds breath and gets blue. No deformity or obstruction in larynx discoverable. X-ray shows no enlargement of thymus.

Following a two-minute exposure to the x-ray, wheezing became a great deal less marked; this improvement lasted only about twenty-four hours, when respiratory difficulty became as pronounced as it had been at its worst and vomiting returned, and this was occasionally projectile in type. Daily treatments were given with striking improvement and by June 6, mother states that baby was infinitely better.

Summary

Of the seven cases reported five occurred in males. The condition became apparent in all but two, at birth. Three were poorly nourished and only one presented the short necked, stocky type. Stridor was present in all but one, and was very pronounced in two,

invariably aggravated during the act of nursing, and contrary to the prevailing notion was suspended during the act of crying. In three tachypnoea was the most characteristic finding. Cyanosis was a prominent feature only in two and intermittently present in four. Attacks of apnoea were observed in two. Neither cough nor hoarseness was encountered. Enlargement could be demonstrated by percussion but once, and all but one showed an enlarged shadow. Hyper irritability of muscular and nervous system was pronounced in two. Convulsions had not been observed, nor any rise in temperature. In none were the superficial glands enlarged or exuberant adenoid vegetations present. Dysphagia was manifested by only two. Constipation was a notable feature in all. In only two could the condition be regarded as alarming in nature. Nearly all conformed to the so-called continuous type of dyspnoea. The response of the five cases to treatment while fairly satisfactory, was not as prompt as that experienced by most observers. One death occurred in the series. No untoward immediate or delayed effects followed treatment.

Conclusions

Thymic enlargement is a decidedly more common condition in the new-born than is generally appreciated. It gives rise only rarely to symptoms and these when evident, are usually limited to disturbed respirations. These are ordinarily mild in character, with a tendency to rapid and complete disappearance in the course of a few weeks. Occasionally alarming dyspnoea and threatening apnoea may arise. These ordinarily yield with gratifying promptness to x-ray therapy. In every new-born displaying an unaccountable difficulty in nursing, stridor, rapid respirations, attacks of apnoea, paroxysmal cyanosis, pronounced hyper irritability, the possibility of an enlarged thymus responsible for the manifestation should present itself and the therapeutic test should be applied.

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DISCUSSION

F. B. Stephenson, Denver: I have selected a small number of slides, especially to illustrate different types of enlargement of the thymus, and in one instance to show the result of treatment in the way of diminishing the size of the thymus. In all of these cases but one, treatment was administered with very satisfactory results. The other case was not treated. There are cases with symptoms in which we are unable to show any x-ray evidence of enlargement; there are many cases of considerable enlargement of the thymus which do not present clinical symptoms; but as a whole a great majority which present clinical symptoms show more or less enlargement, so that the x-ray procedure is valuable as an aid in the diagnosis.

I will say in connection with Dr. Grant's discussion of a previous paper in which he decries the use of laboratories and instruments of precision that I feel that he eventually undertook the use of the clinical thermometer—an instrument of precision; later, perhaps, he consented to use the stethoscope, again in the realm of physics; and if he lives to a ripe old age, he may grudgingly be ready to take up the x-ray as one more "instrument of precision".

E. L. Timmons, Colorado Springs: Enlarged thymus has oftentimes gone a long time without being recognized in my private experience. A number of symptoms not altogether classical may point to our treating enlargement of the thymus. Among others may be an inability to nurse properly, which is more or less a classical symptom, or to cry loudly; and a failure to gain, apparently, on proper diet, may be one symptom of enlarged thymus. And in one recent case I saw it seemed that the one most common symptom was that the child seemed to strain and groan as though at stool. The thymic death may be prevented, especially in operative procedures, by x-raying of the thymus gland before operation. I believe in the Massachusetts General Hospital there was one thymic death under anaesthesia. They x-rayed about 2,344 with positive shadow of 185; of these, 110 were successfully treated and were later operated. Ninety per cent of those treated, the shadow was very much diminished. So probably in some of these cases where we have originally had this type of unpleasant experience, that a routine similar to that in the Massachusetts General Hospital would be worth a great deal to us.

I have never been able to add much to anything after Friedman has taken a chance at it. If you will give him time, he will cover it fully.

Edith Boyd, M.D., Minneapolis: I have spent my spare time the last two years studying the thymus. Dr. Friedman has covered the literature better than most men writing at the present time. It is an exceptionally comprehensive study of the high points in the literature.

About the only thing I have to add is that we should be careful not to confuse the thymic symptoms in the small infant with status lymphaticus. In doing autopsies and checking up on all our autopsy records of status lymphaticus in the last six years, we have been able to prove in most of our cases that an infection is the cause of death. When you consider that most of the evidence today indicates that the thymus is a lymphoid organ and that all the lymphoid tissue shows atrophy after three days of inanition, you may realize how the idea of status lymphaticus arose. The children die of an acute illness within the three days, and we find normal lymphoid tissue instead of the atrophic lymphoid tissue found in chronic and protracted illnesses.

Nicoll and Bovaird in 1905 deliberately took for normal the weight of thymuses from children dying of chronic or protracted illnesses, because Friedleben's tables, then commonly accepted, were compiled from sudden and accidental deaths. They concluded that a thymus weighing more than 10 grams was enlarged and that involution began at 2 years. Also, that Friedleben's figures of 15-20 grams for weight of thymus at birth with increase to 30-35 grams at 15 years, followed by decrease, were due to including the sudden deaths from status thymicolymphaticus. Hammar and Scammon independently have collected a large series of weights from accidental deaths only, and their figures approximate Friedleben's original ones. If these latter figures are correct, we have no pathologic criteria which are diagnostic of status lymphaticus. Adequate figures for normal lymph nodes have not been compiled. Accurate measurements are not recorded, merely such terms as "enlarged", "moderately enlarged", etc., are used. These are dangerous terms from which to draw conclusions.

But the symptoms produced by a large thymus in a young child constitute an entirely different clinical picture, which does not belong to the group of status lymphaticus.

The work here has certainly been an excellent demonstration.

G. M. Blickensderfer, Denver: I would like to discuss for a moment the thymus gland from a different point of view. In the spring of 1911 I saw a woman who was suffering from arthritis deformans. She presented a most deplorable picture, was greatly emaciated and in constant pain. She had been confined to her bed for three years and was helpless, due to ankylosis of the elbows, hips and knees. This case had been treated by a number of physicians and cultists with no relief whatever. She had been through the therapeutic gamut, including diet, salicylates and physiotherapy, and, at the time I saw her, was taking morphine for relief. There seemed nothing I could do but attempt to keep her comfortable with general care and morphine. About three days after I was called to see her, I noticed in the Journal of the American Medical Association, an article by Phillip Nathan on the treatment of arthritis deformans. Nathan had treated a series of 85 cases, I believe, with extract of thymus gland with very good results. Acting upon that article I obtained some extract of thymus gland and gave it to this patient. She took ten grains three times daily for about one year, and at the end of that time had gained 40 pounds. She was able to get out of bed, but the first thing she did on attempting to walk was to fall and fracture the right femur. That laid her up for three or four months again and then the case passed from my observation. I saw her, perhaps five years later, and she informed me that she was earning a living teaching school up

in Wyoming. I watched her and she walked around very well. There was some impairment in her gait; she did not have a normal walk; but this woman had improved to such an extent that she could care for herself and earn a living.

Nathan, in his article, argued that arthritis deformans was a disease produced by some defect in metabolism, contrary to the general belief of the members of the profession who look upon the disease as a focal infection. Following the treatment of that patient, several other cases of arthritis deformans came under my care and were given similar treatment, and a number of them were improved and their pain relieved. There was no improvement in the deformities except in this one case. This patient's ankylosis was not entirely osseous in character. There was, no doubt, a great deal of it due to muscular contraction and spasm caused by pain.

In addition to thymus gland, general hygienic care, a nourishing diet, tonics, massages, and passive motion were given all cases.

Dr. Friedman (closing): The straining and groaning that Dr. Timmons speaks of might very

well have been an expression of constipation. Constipation was present in almost every case I have seen, and was quite a pronounced symptom. It was indeed a rare privilege to have had Dr. Boyd discuss my paper, because the remarks that she has made are based upon actual work in one of our foremost universities. I think it should be emphasized that an enlargement of thymus and a status lymphaticus are not synonymous terms by any manner of means. Status lymphaticus embraces much more than enlarged thymus. An enlarged thymus is really one of the findings in status lymphaticus. Status lymphaticus is exceedingly elusive from the standpoint of the diagnostician. It is hard to say when you have it, excepting when you meet one of these catastrophies in the shape of sudden unexpected death, without any apparent cause.

Dr. Blickensderfer's remarks are very interesting. If I had had the time I would have spoken at greater length of the function of the thymus gland. It is alleged that one of the functions of this gland is intimately concerned with the process of metabolism.

THE TUBERCULOUS APPENDIX, THE LOCAL REACTION AND POST-OPERATIVE CARE AFTER SURGICAL INTERVENTION*

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DENVER, COLO.

Since the discovery of the tubercle bacillus, by Koch, in 1882, there has been considerable study of its various lesions throughout the body; but the subject of tuberculosis of the appendix has seldom been touched upon, the paucity of the literature being very great.

While attention is frequently called to the unfavorable results following operative interference on other types of tuberculous tissue, no where in the literature, so far as the writers are aware, has attention been called to an unfavorable sequence following an operation on the tuberculous appendix.

The first to recognize tuberculosis of the appendix was Corbin, in 1873. Scott¹ in 1917, was able to find but forty-four articles on this subject and of these only nine were written in this country.

The opinions of the different medical writers, as to the frequency of the disease, vary considerably, but all are agreed that it is relatively infrequent. Deaver,² of Philadelphia, considers it as among the greatest rarities, while Lockwood, of England, and the late J. B. Murphy believe that two per cent of all diseased appendices are tuberculous.

A survey made by Dr. Philip Hillkowitz, of three of the large hospitals in Denver, covering a period of three years, gives an average of 0.63 per cent, or less than 1 per cent in which the giant cell was found in the sectioned appendix.

The original and classic study of hypertrophic tuberculosis presented before this Society, at the Glenwood Springs meeting, 1921, by Taussig and Shere,³ indicates that primary tuberculosis of the cecum and appendix is far more common than we have reason to believe. That there are three types of surgical tuberculosis about this area is generally conceded.

First: The Hypertrophic, as described by Taussig and Shere.

Second: The Ulcerative.

Third: The Miliary.

The writers believe the scarcity of the literature on the subject to be due to two factors; first, that tuberculosis of this organ, aside from the involvement in the terminal stage in a general tuberculosis is quite rare; second, that the difficulty of its recognition in its early stage either clinically, on the operating table, or by the pathologist is great, because in this stage there is seldom any clinical evidence other than that which is found with low grade progressive inflammation. On operation the appendix may ap-

*Read at the annual meeting of the Colorado State Medical Society, September 29-October 1, 1925.

pear as a simple catarrhal inflammation, and, although careful serial sections of the organ are made, rarely are giant cells found. The tuberculous lesion, however, may be recognized several months after the operation, first by pain and localized tenderness in the ileo-cecal area and afternoon rise in temperature, later with tumor mass and finally peritoneal fusion and fecal fistula at the site of the original incision.

The age incidence of tuberculous appendicitis, as shown by Muller's Table⁴ would suggest the majority of cases occur in youth, corresponding with the observations of Tausig and Shere and with the incident curve of pulmonary tuberculosis. The disease is more common in males than in females, the ratio being 3 to 2. (See diagram.)



BEFORE OPERATION

X, skin incision.

A, small crater-like area at upper end of incision containing a small fistulous opening.

B, large protruding mass of granulation tissue rising above the skin level and containing also a fistulous opening.

We believe that tuberculosis of the cecum and appendix may clinically first appear as a simple chronic, or sub-acute one, and that an operation at this time will not determine the presence of tubercle bacillus, although the organ may be potentially infected. If operated at this time, it is prone to light up an active process. If not operated, it may slowly but progressively develop into either the hypertrophic, miliary or ulcerative form,

depending upon the site of election of the infectious material, or the patients so called allergy, resistance or whatever one may choose to call it. If the infection is in the mucosa then the ulcerative type develops because of the mixed infection in this plane. If in the muscular or serous coat, the miliary type occurs and the hypertrophic form appears in the muscular coat because of the tendency to form scar tissue here.

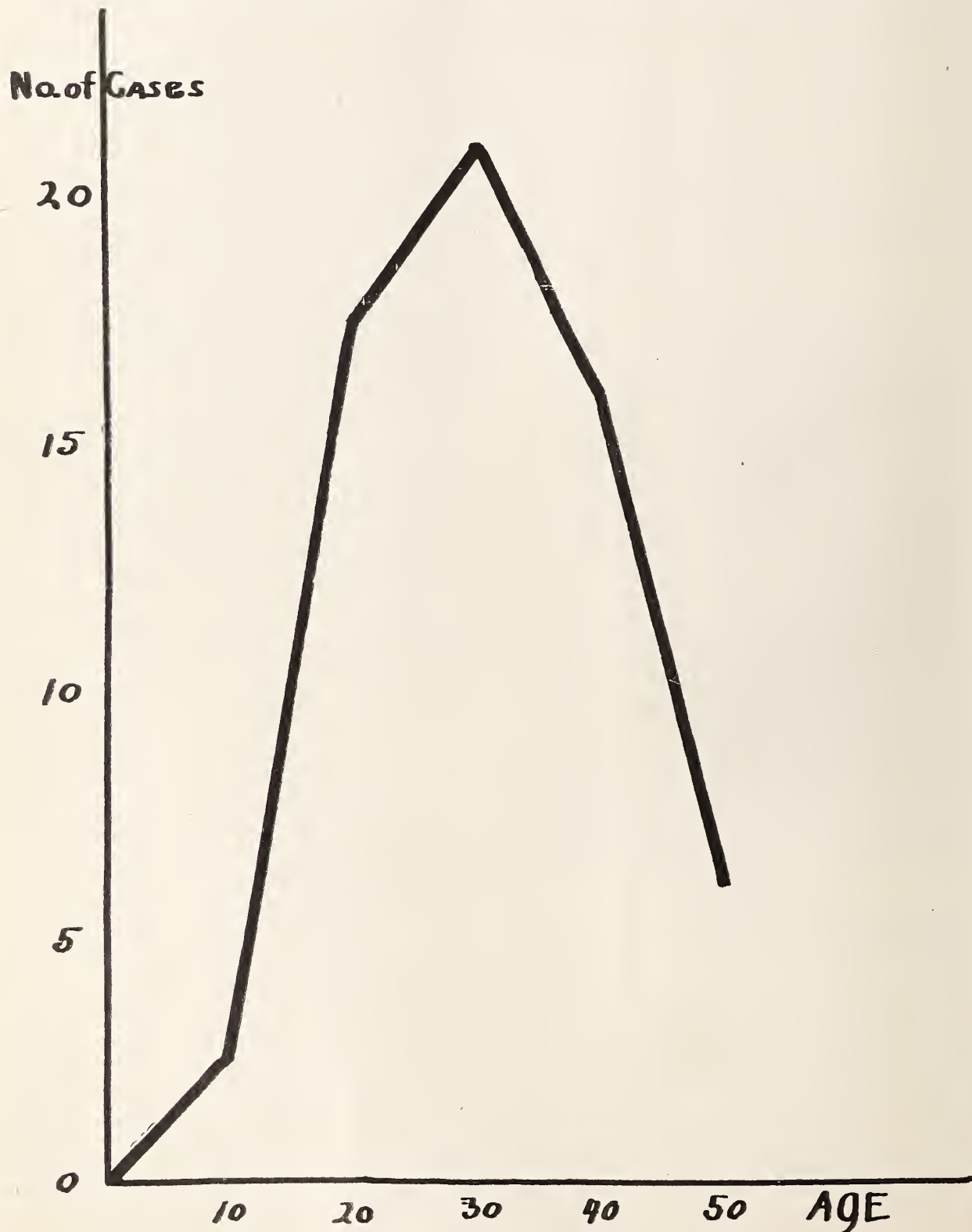
We quote from De Costa's Modern Surgery,⁵ the chapter on the Allergy of Pirquet in which it suggests that the presence of large lymph nodes, so often associated with tuberculosis of the cecum and appendix, would indicate a primary infection. While these observations of Pirquet's are reported to have been made on that most sensitive of animals to tuberculosis, the guinea pig, yet we can reasonably assume that the process will be similar in the human:

"From experimental studies we have learned that the tissue reaction to a first infection by tubercle bacilli is radically different from that of a second, or super-infection in an animal in which the original infection has not died out. When the normal guinea pig, for example, is inoculated for the first time with tubercle bacilli nothing happens at the site of inoculation for about a week or ten days, after which a small nodule appears on a non-inflammatory background. Microscopically the lesion is characterized by proliferative phenomena rather than those of inflammation. The adjacent lymph nodes are involved and after a time the nodule ulcerates and, if the dose of tubercle bacilli was large, the guinea pig dies of progressive and generalized tuberculosis. If the dose of tubercle bacilli was small, so that the guinea pig recovered from the tuberculosis, although harboring tubercle bacilli, the response to a second injection, as stated above, will be characterized by a radically different picture.

At the point of inoculation a rapidly developing inflammation occurs. Its intensity will vary with the number of bacilli inoculated, the inflammatory phenomena reaching their height within twenty-four or forty-eight hours, and eventually in severe cases, in sloughing and necrosis. The adjacent

MULLER'S TABLE

Age Incident of Tuberculous Appendicitis



lymphatic glands are not involved. The constitutional symptoms are severe.

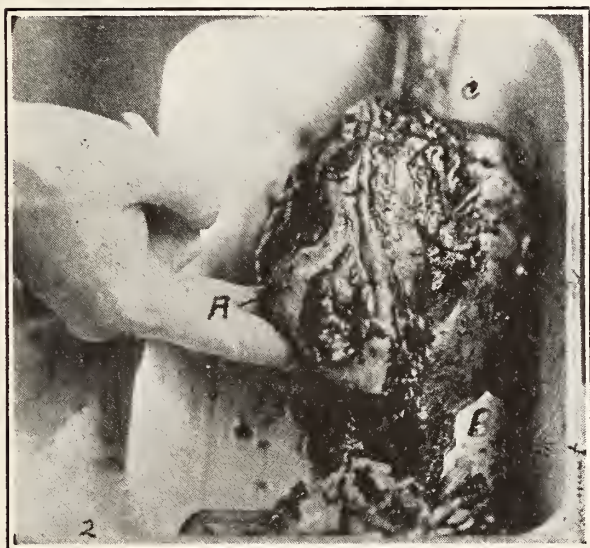
To repeat, a first inoculation in a healthy guinea pig is characterized by a proliferative lesion of slow evolution with inflammatory phenomena, with an active lymph node involvement with progression to cure, latency, or progressive disease and death, depending upon the number of tubercle bacilli inoculated. A second infection in a tuberculous animal is characterized by an inflammatory lesion of rapid evolution with exudative phenomena, with localized changes of varying severity, depending upon the number of bacilli inoculated, without involvement of the adjacent lymph glands, and usually with recovery if the dose has not been excessive. This striking and rapid ex-

proliferation, peritoneal fusion and relapse following the ordinary appendectomies occur, and special stress should be placed upon their post-operative treatment.

The secondary form is associated with lesions elsewhere in the body, very commonly pulmonary and intestinal, though they may arise from a foci anywhere. The question is raised by Kelly and Hurdon⁶ whether tuberculosis of the appendix antedates or follows infection of the cecum as frequently the more advanced lesion is found in the appendix. Mayo and Brewer⁷ report that in their experience tuberculosis of the appendix is always associated with the same infection in the cecum; while on the other hand many observers have noted that ileocecal and intestinal tuberculosis is often found without involvement of the appendix, suggesting the latter is effected secondarily. Fenwick and Dodwell⁸ found that in 17 out of 2,000 autopsies on tuberculous patients, the appendix was the only part of the intestinal tract involved. Hence there seems no good reason to postulate any fixed rule in regard to priority of tuberculous infection of the appendix, any more than it would to attempt such rules in regard to other regions of the body.

Tuberculous infection of the appendix may be produced as follows: **First**, direct extension; **second**, hematogenous, and **third**, infected contents of the intestinal tract. It is probably by this third route that the primary infection is developed. The infected material is ingested and passes along the intestinal tract without producing a lesion until it reaches the cecum. Here the passage of the intestinal contents is considerably delayed and the infected material passes into the appendix. The tubercle bacilli then acting as a parasite gains a footing and localized infection follows. The possibility of this mode of infection becomes worthy of consideration when one realizes the usual dependent position of the appendix and the fecal stasis found here.

The difficulty of demonstrating tubercle bacilli in the visceral tissues has prompted us to base our diagnosis of abdominal tuberculosis upon, **first**, the presence of large lymph nodes, **second**, miliary tubercles and



AFTER OPERATION

A, is the area seen at B Cut No. 1. The whole is a mass limited above at C by the hepatic flexure and below by B, which approximately marks the ileo-cecal junction.

udative response of the tuberculous animal to re-infection is due to a condition of hypersensitiveness of the tissues which Pirquet calls allergy''.

Basing our conclusion on the allergic studies of Pirquet it would seem that the presence of enlarged mesenteric glands (tabes mesentericus) found in the abdominal cavity while operating are significant of a primary rather than a secondary infection in the appendix, especially if clinical evidence of tuberculosis is elsewhere absent. It is in these cases of primary infection, with lymph nodal involvement that active cell

hypertrophic tissue changes, and **third**, prior evidence of tuberculosis elsewhere.

Paradoxical as it may seem, most of the acute appendices in the chronic tuberculous are of pyogenic origin. It is, therefore, obvious we must always be prepared for operative interference whenever there is ushered into the history of a chronic tuberculous case, the picture of an acute abdominal storm. It is quite probable that these chronic general tuberculous cases do not give the unfavorable reaction after operation to which we refer, or cases similar to the one illustrated would happen more frequently.

The hypertrophic and sub-acute, or chronically inflamed appendix, associated with enlarged mesenteric glands, while free from other evidence of tuberculosis, have in the writer's experience seemed most vicious in their relapses after an appendectomy. When dealing with a self evident hypertrophic lesion involving either the appendix alone, or both appendix and cecum, we are indeed confronted with a problem sometimes very difficult of solution. Radical excision is prone to light up the slumbering processes, since tuberculosis does not react kindly to trauma or section. A malignant granuloma and fecal fistula may be the eventual answer. We should, therefore, seek more conservative methods. If there is narrowing about the ileo-cecal valve, or other evidence of impending obstruction, an ileo-colonic anastomosis may safely be undertaken, the anastomosis being placed in healthy tissue. The appendix, unless seriously involved is left untouched; but if removed, the stump is turned into the anastomosed area, when possible, thereby reducing the average of secondary and mixed infection.

The appearance of the appendix which we have found, which is not hypertrophic, but which we believe is either tuberculous or potentially so, is a sub-acute or chronic one which may be large, thick and of the lymphoid type, or large and friable. It is dry and caseated and the pathology is almost wholly limited to the organ. It is so friable that ligatures about the stump tear through and, while lifting it from its bed, it crumbles on the slightest manipulation. Its color is usually a reddish gray and it is most fre-

quently found associated with enlarged mesenteric glands.

Neither this nor the hypertrophic types may present any evidence of the miliary tubercles. Frequently there are efforts at peritoneal fusion between the ileum and cecum, the appendix being buried in the folds of the fused mass, at times surrounded by a small quantity of pus. This all suggests a slowly developing infective process with a protective inflammatory reaction, keeping just ahead of the lesion as a protective measure. This to our mind is quite dissimilar to the pyogenic reaction which is an acute plastic exudate, with adhesions and conversion of the peritoneal coat into fiber-



Same as cut No. 2 after laying specimen open. A, is the cecal end and B the hepatic flexure or thereabouts. The landmarks are very indistinct. There is a small gut lumen in a mass of fibrous and granulation tissue.

ous tissue, the adhesions being thin and easily separated by tearing from the muscular coat.

De Costa in his last edition on Modern Surgery well outlines this process in his brief description of the tuberculous appendix when he says, "Acute symptoms may develop resembling those of acute appendicitis. There is usually a history pointing to intestinal stenosis, the stenosis existing at the ileo-cecal valve. There is always great thickening and an abscess of large size is apt to form. The cecum usually, but not always, is involved in the tuberculous process. Chronic cases with a palpable enlargement

are sometimes mistaken for cancer of the cecum."

In considering the differential diagnosis between tuberculosis and cancer of the appendix, it is well to remember that cancer is extremely more rare than tuberculosis, and provokes but little or no glandular involvement.

Conclusions

1. Tuberculosis of the appendix is a definite entity.
2. It is more commonly a primary infection than is generally accepted.
3. Primary infection develops probably from contaminated fecal content at the point where intestinal stasis is most marked.
4. Three types of tissue change occur in tuberculous infection of the appendix, namely; the ulcerative, hypertrophic and miliary.
5. Operative interference on the primary tuberculous appendix is prone to light up an active process.
6. Patients suspected of having a tuberculous appendix should, as early as possible, be given a vigorous and intensive post-operative treatment for tuberculosis, the essentials of this being a good, generous and well balanced diet, rest and heliotherapy.

Treatment should be continued for a minimum period of two years.

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DISCUSSION

W. A. Kickland, Fort Collins: I have been much interested in Dr. Tennant's most excellent paper. He has covered the subject so thoroughly that he has left very little for me to say.

In our small hospital we have the pathologist present whenever we operate for a possible malignant condition—but in the ordinary run of appendectomies he does not examine or report on the specimen removed, and we have passed over some cases which may have been tuberculous.

I recall two cases in which the tuberculous peritonitis was located in the cecal region, and the appendix was involved to a greater extent than the rest of the organs. One had been operated by

another surgeon and the appendix removed but a fecal fistula remained. The sinus was dissected out and the opening in the cecum closed and, fortunately, remained closed. The second case had been diagnosed typhoid fever, but operation disclosed a tuberculous appendix which was removed. A fecal fistula followed this operation, but the fistula closed by itself about six weeks later.

Howard Kelly reports, out of 3,770 autopsies, tuberculous lesions were found in the appendix in 44 cases. In 39 the lesions began in the mucosa and extended to various depths into the tissues. In a number of these the process was a part of the ileocecal tuberculous involvement. In five cases the disease began in the peritoneum.

Symptoms of tuberculous appendicitis do not differ from those of ordinary cases. The course of the disease is apt to be a chronic one, with occasional attacks of cramps and a mild rigidity in the right lower quadrant of the abdomen. At times a secondary colon bacillus infection seems to superimpose itself on a tuberculous ulcer in the appendix with a rapid necrosis and perforation.

After hearing Dr. Tennant's explanation of the enlarged glands following primary tuberculous infection, one wonders whether some of Dr. Freeman's cases of abdominal adenitis may have had their origin in a tubercular appendix.

Papers like the one under discussion open up a new field of investigation, but the explorer must, to a great extent, travel alone as there are few equipped to keep him company.

J. N. Hall, Denver: There are a few points I do not think have been properly set forth. I will answer one question raised by Dr. Kickland's discussion as to the tuberculous appendix in the case of the large mesenteric glands. I have seen many of these cases with Dr. Freeman. I should not speak for him, however. Dr. Freeman and I have had many of these glands examined, and only in the rarest instances were they found tuberculous, and in a number of instances they were injected into guinea pigs without producing any results. One type of tuberculous appendix has not been mentioned, and fortunately it is one which a careful microscopic examination would show. One occasionally finds here and there on the outside of the appendix a bunch of small tubercles and a tuberculous ulcer within. In tuberculous patients for many years I made the regular mistake of diagnosing a tuberculous appendix whenever I saw a case—a man pretty well advanced with tuberculosis, but it generally proves to be an ordinary acute appendix.

It is much safer to diagnose an ordinary suppurative appendicitis than to take the chances of tuberculosis, for the tuberculous appendix in the ordinary tuberculous case is rare. The physician's viewpoint in the tuberculous sanitarium is sometimes distorted until he thinks that everything is tuberculous. Those of us who have seen these cases recognize how dangerous it is to make a diagnosis in advance of tuberculous appendix. I have seen more of them that I have diagnosed in advance, and I have diagnosed a great many more appendices as being tuberculous which are not, than I ought to have done. I thank you.

Leonard Freeman, Denver: My name has been mentioned in connection with this subject, on which, unfortunately, I know very little. It is an extremely rare condition, I will subscribe to that, because, in quite a number of appendix operations which I have done in a great many years, consciously I have removed exceedingly few tuberculous appendices. I do not think that they have much to do with the mesenteric lymphadenitis

that has been mentioned, not only because we have not found tubercle bacilli in the glands, as has been mentioned by Dr. Hall, but also because I have never found them in any appendix that I have removed, and have had examined where lymphadenitis existed. I think such a paper as Dr. Tennant has given us is of great value. It is one of the values of a society like this for some member to take up one single subject, particularly some subject that is not very well appreciated, and work it out thoroughly and give us all his conclusions regarding it. I do not agree with some on these conclusions, however. For instance, the method of infection of a tuberculous appendix: I do not believe it occurs from the intestinal canal. If it did, we should find tuberculous appendices in many more cases. There are thousands of individuals suffering with tuberculosis of the lungs, and yet as Dr. Hall has so strongly emphasized, you do not find tuberculous appendices in these individuals any more than you would ordinarily perhaps—at least, it is extremely uncommon. And then again, that is not the way that tuberculosis gains its entrance into the different organs of the body. Tuberculosis usually enters either through the lymphatics or the circulatory system. That is true in the bladder, it is true in the kidneys, it is true in the testes, it is true in various other organs throughout the body, although I know that this position is disputed. Nevertheless, I maintain it is probable that tuberculosis, even in the lungs, is very largely acquired through either the lymphatics or the circulatory system, and I think that is also true of the appendix.

O. M. Gilbert, Boulder: I think the work of Lawrason Brown at Saranac Lake is interesting. Edwin Archibald, at Montreal, has brought these tuberculous appendices and tuberculosis of the cecum onto somewhat surer ground. He shows it is much more common than commonly thought, and far more common in the latent stages of tuberculosis, as Dr. Freeman has so well emphasized. They have also shown that the appendix harbors the infection to a far greater degree than any of the other intestinal parts, and that the removal of the appendix will often make a marked change in the state of the patient. They have also shown by autopsy examination that the healed lesion in this region is far more common than we had thought, so that undoubtedly many of the minor symptoms that we have passed by as mere incidents of the patients, pulmonary infection are really actual cases of tuberculosis of the appendix. There is one other fact that deserves emphasis; and that is our usual acceptance of our blood findings; as distinguished from other forms of appendicitis. I have seen as high as 24,000 leucocytes in one case proven to be tuberculous appendicitis proven so by biopsy. It has been shown that the degree of leucocytosis is more largely a matter of the acuteness of the event than of the type of infection. If your tuberculous infection is sufficiently acute, you may get leucocytosis; it is true, not quite so high as in other types of infection.

Philip Hillkowitz, Denver: May the humble pathologist make a few remarks on the tuberculous appendix? Since the standardization of hospitals, opportunities have been given to examine all the material removed at operation. As appendectomies contribute the greatest percentage of hospital operations, the pathologist is in a position to form conclusions as to the relative frequency of tuberculosis in this organ. A survey of appendectomies of two hospitals of Denver during the years 1923 and 1924, totalling 2,534 cases,

showed in one an incidence of 0.88 per cent and in the other 0.2 per cent. The greater relative frequency of the one is due to the fact that the patients from a sanatorium for tuberculosis were sent thither for operation. The average for the two hospitals was 0.63 per cent.

I am not quite in accord with the hypothesis that in the incipient stage of tuberculosis, we should find a greater frequency of tuberculous appendix than in the advanced cases. Statistics in Brauer's "Handbuch der Tuberculosis" report in autopsies of cases of advanced tuberculosis over 90 per cent of tuberculosis of the intestine. It is natural that lesions will be found in the appendix in the intestinal tract.

The literature on tuberculosis of the appendix is meager, being generally considered under the heading of tuberculosis of the intestine.

I am heartily in accord with the statements of Dr. Hall and Dr. Freeman as regards the incidence of ordinary acute appendicitis in patients suffering from pulmonary tuberculosis. We are grateful to the essayist for bringing this subject to our attention as we in Colorado are particularly interested in every phase of tuberculosis.

G. A. Boyd, Colorado Springs: The high points in Dr. Tennant's paper are the recognition of the fact that tuberculosis of the appendix occurs in three forms: (1) That in primary tuberculosis of the appendix the same changes both local and systematic that occur as in primary lesions elsewhere in the body. That this primary lesion may be identified with great difficulty because no distinctive tuberculous pathology has developed, yet post operative sequelae leaves no other conclusion than that the region was infected with tubercle bacilli, that large lymph nodes are most suggestive of this stage of infection and would call for the post operative treatment of rest, food and heliotherapy. That operation may result in extension of the infection. (2) That in super infection where latent tuberculosis exists in other parts of the body, there is an intense local reaction but no lymph gland involvements. And once the immediate reaction is withstood a greater tendency to recover. Gross pathology shows tubercle in the appendix, and surgery should be conservative. (3) That type occurring in advanced pulmonary or intestinal tuberculosis where secondary infection occurs through the tuberculous ulceration, prompt surgery is here urgent and the condition of the patient and not the spread of tuberculosis the main consideration. These points with the observation on the appearance of the appendix in acute primary infections marks this paper as one of real value. I hope we may all use it in our future dealings with appendicitis.

Dr. Tennant (closing): I want to emphasize three things which were outlined in this paper. First, it is the pyogenic appendix which is most frequently found in the tuberculous individual. Second, it is the primary tuberculous appendix that is most likely to give the reaction which we have described. We have been unfortunate in having five cases of this type and all have been very serious. Third, these are the cases in which the patient may come to the table perfectly well otherwise, yet with a potentially tuberculous appendix, and these are the cases in which the least possible operative interference the better. Fortunately these cases are quite rare and must not be confounded with the pyogenic type of appendix occurring in the tuberculous individual for these are in need of operative interference and, of course, are benefited after removal of the appendix.

PSYCHOPATHOLOGY—THINKING DISTURBANCES

LLOYD H. ZIEGLER, A.M., M.D.,

Resident Psychiatrist, Colorado Psychopathic Hospital,
DENVER, COLORADO

There are two distinct types of pathological thinking. One refers to the ease, manner, or rate of thinking. The other refers to the content or character of thought. These two components of the thinking process not infrequently are pathological at the same time.

The most objective standards for measuring the rate of thinking, crude as these may be, are the length of time it takes to answer simple questions or the amount of language production in a given time and its character. Thoughts may come very slowly, so slowly in fact that a minute may pass before a patient attempts to answer the simplest of questions. Such behavior is in bold contrast to the usual behavior of such a person. Patients may feel keenly this **retardation of thought** and express it as "sluggishness of thought", "a great effort to think", or "a failure of thought to form." This may be partially comparable to the thinking difficulty that anyone would have in extreme fatigue or exhaustion from hard work.

Rapidity of thinking may become pathological. Thoughts come and go with lightning speed. The individual is overwhelmed with thoughts. In their fleeting passage the bonds of association that usually obtain in the stream of thought are distorted. Such associations are very superficial in character and depend on similarity of sound of words (clang), or on rather farfetched relations of time or place. Language that is held together by such slender threads of association is called **flight of ideas**. The following example is illustrative. A very active patient in a very joyful, elated mood produced the following spontaneously: "South African Boer tours China, Tea, Tea, Tea—oh, it's supper time, apples for supper, no it's breakfast; fasten me here, beer, beer, Germany was licked and I was kicked."

Such thinking is frequently described as incoherent. On close examination, however, it is seen to possess some degree of coherence. Irrelevance is a descriptive term often used to describe it, but if the nature of the rapid thinking processes are better under-

stood the thin chain of relevance is seen.

In certain brain lesions the apparent inability to express thought in language may be due to a failure to interpret the language-inducing stimuli or a failure of the motor expressive mechanisms (tongue, vocal cords, palate, etc.) to work co-ordinately to produce the person's thoughts in language. In such disorders the difficulty may be simple, as an occasional failure to name a well known object, or it may be so profound that all language productions are a jargon or "word salad."

Occasionally a person may be obsessed by a single thought or two that recurs with annoying regularity, no matter what is done to prevent it. The obsessing thought may be pleasant or unpleasant in itself. The tendency for it to recur is very bothersome. Such a disturbance has been known to undermine the usefulness of a person and cause him to seek medical aid.

A discussion of the content or character of thought must be reserved for a subsequent issue.

SUGGESTIBILITY

One might go on with this story hour after hour, each chapter more absurd than the other, and yet each of these healers, or systems of healing, has attained therapeutic results with certain patients who have gone from physician to physician without obtaining relief. The "cure" may have come from one believed to have a commission from on high, it may have been poor whiskey with a bitter taste, a punch in a perfectly good vertebra by an ex-sewing machine agent, a harmless electricless belt, the printers' ink taken with a bottle of swamp-root; it may have been any hook on which to hang a therapeutic hope; but, it may have cured. There is no denying this, for it is true. "Cures" of these types have been working successfully since earliest history. We may laugh at the absurdities recorded; but, human nature does not change, and our present age does not lag behind in its tendency to be cured by anything and everything that changes the patient's mental attitude toward himself and his ills. People healed in these manners are not limited to any strata in life. They include the rich and the poor, the ignorant and educated; in fact, it is usually the educated mind that is most suggestible. Remember that children, half-wits and idiots are never cured in this manner; in fact, the quack has learned to waste no time on them. On the other hand, school teachers, clergymen and college professors are often easy prey; and Walsh names in addition the "high-brows" and defines them as those with more education than intelligence.—Rock Sleyster, Wis. Med. Jour.

SYSTOLE

Adversity has no friends.—Tacitus.

Flattery is a base coin to which only our vanity gives currency.—La Rochefoucauld.

Honor is an old-world thing; but it smells sweet to those in whose hand it is strong.—Ouida.

Ill habits gather by unseen degrees, as brooks make rivers, rivers run to seas.—Dryden.

Ignorance is the night of the mind, but a night without moon or stars.—Chinese Proverb.

Thou hast betrayed thy secret as a bird betrays her nest, by striving to conceal it.—Longfellow.

Frank sincerity, though no invited guest, is free to all, and brings his welcome with him.—Havard.

Falsehood is often rocked by truth, but she soon outgrows her cradle and discards her nurse.—Colton.

When you discover a stain in yourself you eagerly seek for and gladly find stains in others.—Auerbach.

He who receives a good turn should never forget it; he who does one should never remember it.—Charron.

Deliver me from every pride—the Middle, High and Low—

That bars me from a brother's side, whatever state he show.

And purge me from all heresies of thought and speech and pen

And bid me judge him otherwise than I am judged.

—Amen.

DIASTOLE

Pleasing

A Denver physician had been patiently collecting a small bill by the partial payment plan. The following is an answer to a statement sent by the physician after three years' monthly correspondence:

Dr. We are not able to send you a payment this month as we have our fire insurance to pay. Hoping this pleases you.

MRS. —

Clean

Dr. Lane said in the Dearborn Independent that he was sure of one thing, that he would not die of cancer, because he observed the rules of bodily cleanliness with-in and without.—Dearborn Independent.

And This From The Englewood (Colo.)

Messenger

This double rôle is not a dual rôle in the accepted understanding of that term, but is exactly the opposite, for this dual rôle is assumed by a former minister, who has turned chiropractor, and his aim in both instances, his big, guiding inspiration has been and is service, and that spells good-big things desired and willingness to work to deliver good—which preamble refers to Dr. D. S. Alexander, a new chiropractor with offices in the Beitenman building, who has recently come to Englewood to reside and identify himself with her interests. Dr. Alexander was a Presbyterian minister in the middle West for many years, and coming to a point in his career where he felt to progress, he needed change, and the health of his family necessitating a climatic change, he came to Colorado to live. Before coming, however, he took up the chiropractic work, and making good in it naturally he has established himself here in that line. As to the dual rôle referred to, he is still a member of the Presbyterian synod, and last Sunday made a trip in answer to a call to Hill City, Kan., to preach in both morning and evening services.—Tonics and Sedatives.

NEWS NOTES

The Daily Bulletin of the American Medical Association reported the following registrants at the Dallas meeting and their convention addresses:

Amesse, John W., Denver, Adolphus.
 Baird, Wm. James, Boulder, 5619 Lindell Ave.
 Bane, C. William, Denver, Stoneleigh Court.
 Baum, Felix, Denver, St. George.
 Black, Herbert A., Pueblo, Southland.
 Blotz, B. Franklin, Rocky Ford, Adolphus.
 Bluemel, C. S., Denver, Southland.
 Bortree, Leo W., Colorado Springs, Melrose Court Apts.
 Bronfin, I. D., Sanatorium, Waldorf.
 Burnett, F. L., Durango, Jefferson.
 Carmody, Thos., Denver, Adolphus.
 Corper, H. J., Denver, Baker.
 Chapman, W. S., Walsenburg, Melrose Court.
 Crouch, John B., Colorado Springs, Melrose Court.
 Darling, J. C., Durango, Adolphus.
 Evans, T. J., Colorado Springs, 1624 Peabody.
 Faber, Edwin G., Denver, Maple Terrace.
 Heller, Frederick M., Pueblo, Jefferson.
 Freudenthal, Alfred, Trinidad, Adolphus.
 Gengenbach, E. P., Denver, Baker.
 Grant, William W., Denver, Athletic Club.
 Hall, J. N., Denver, Baker.
 Hargreaves, O. C., Denver, 441 Ross Avenue.
 Henkel, Fred W. E., Rifle, Adolphus.
 Hersom, Ralph G., Denver, 1615 S. Ervay.
 Hillkowitz, Philip, Denver, Adolphus.
 Johnston, W. S., Pueblo, Scott.
 Kinney, J. E., Denver, Jefferson.
 Knowles, T. R., Colorado Springs, Baker.
 Lamme, James M., Walsenburg, Melrose Court.
 La Moure, Howard A., Pueblo, Jefferson.
 Larson, John H., Wray, Adolphus.
 Levda, James H., Denver, Washington Apts.
 Liddle, Edw. B., Colorado Springs, Southland.
 Lingenfelter, G. P., Denver, Maple Terrace.
 McKinnie, L. H., Colorado Springs, Baker.
 Maul, Robert F., Denver, Jefferson.
 Meader, C. N., Denver, Baker.
 Miller, Eli A., Denver, Waldorf.
 Minnig, Arnold, Denver, 4004 Lemmon Avenue.
 Moleen, Geo. A., Denver, Adolphus.
 Morris, Printz, Denver, 4006 Spence.
 Pattee, James J., Pueblo, Ervington.
 Price, R. Craig, Denver.
 Ross, Matt R., Denver, Maple Terrace.
 Sevier, J. A., Colorado Springs, Baker.
 Shollenberger, Chas. F., Denver, 4017 Crutcher.
 Singer, William F., Pueblo, Scott.
 Smith, Harry A., Delta.
 Spivak, C. D., Denver, Adolphus.
 Withers, Sanford, Denver, Melrose Court.
 Wolfe, Roy E., Rockford.
 Woodcock, Burgett, Greeley, 1118 Hollywood.
 Work, Hubert, Pueblo, Baker.
 Sevier, Charles E., Colorado Springs, Baker.
 Thompson, C. W., Pueblo, Southland.
 Bates, Mary E., Denver, Scott.
 Black, Melville, Denver, Adolphus.
 Brown, Morrow D., Denver, Ervington.
 Burnett, Clough T., Denver, Jefferson.
 Burnett, N. M., Lamar, Jefferson.
 Burns, T. Mitchell, Denver, Jefferson.
 Childs, S. B., Denver, Jefferson.
 Calonge, Guy E., La Junta, 1615 So. Ervay.
 Crisp, Wm. H., Denver, Melrose Court.
 Curfman, Geo. H., Salida, Maple Terrace.
 Delehanty, Edward, Denver, Scott.

Finnoff, William C., Denver, Adolphus.
 Forbes, Roy P., Denver, Ervington.
 Forney, Fred A., Woodmen, Melrose.
 Fowler, H. L., Denver.
 Gillaspie, Carbon, Boulder, Ervington.
 Gillett, Omer R., Colorado Springs, 3525 Drexel Drive.
 Good, Brooks D., Colorado Springs, Scott.
 Howard, T. Leon, Denver, Adolphus.
 Huelsmann, L. C., Colorado Springs, Jefferson.
 Jackson, Edward, Denver, Melrose Court.
 King, W. W., Denver, Oak Lawn Inn.
 McKeown, E. E., Denver, Melrose Court.
 McNaught, Francis H., Denver, Adolphus.
 Maynard, C. W., Pueblo, Baker.
 Ranson, John R., Denver, 3931½ Gilbert.
 Spencer, Frank Robert, Boulder, 3707 Crescent.
 Wasson, Wm. W., Denver, Jefferson.

Dr. Joseph C. Savage has opened new offices in the Imperial Building.

Dr. and Mrs. J. N. Hall returned home after a trip to the West Indies.

Dr. C. T. Burnett has been re-elected president of the Denver Tuberculosis Society.

Dr. Leo V. Tepley of Denver recently announced his marriage to Miss Mazie Penn Y. Cuick.

Dr. and Mrs. Henry S. Reid and son, who have been wintering in Honolulu, have returned home.

Dr. and Mrs. David Coover returned home recently after a six weeks' sojourn in California.

Dr. and Mrs. Franklin Gengenbach have returned home after several weeks at Hot Springs, Ark., and Memphis, Tenn.

Dr. and Mrs. R. G. Davenport have returned home after a motor trip to Texas.

Friends of Dr. and Mrs. T. J. Swisher of Rawlins, Wyoming, are in receipt of post cards from Chosen, Hotel Kejo Seoul. They report a most lovely time but feel that they are a long way from Wyoming.

Dr. George C. Smith of Casper, Wyoming, has recently returned from a honeymoon spent in Hawaii.

Dr. V. R. Dacken has recently fitted up offices in the Midwest building in Casper, Wyoming.

Dr. Harmon L. Stantion is leaving Casper on the 18th for a visit in his old home in Iowa.

Dr. Charles W. Thompson of Woodcroft Hospital, Pueblo, addressed the meeting of the Panhandle District Medical Society at Amarillo, Texas, April 13th, on the subject of "Neuropsychiatric Conditions Associated With Endocrine Disturbances."

DR. S. G. MUGRAGE

Dr. Samuel G. Mugrage, 74 years old, a widely known Denver physician who had been a citizen of Colorado more than half a century and a resident of Denver forty years, died suddenly of a heart attack at his home, 575 Josephine street, 10 o'clock Monday night, April 12th.

Dr. Mugrage was born and reared in Marietta, Ohio, and settled first in Netherlands, Colo., later removed to Leadville and thence to Denver. He was an instructor of medicine at the old Gross Medical College and always was active in Masonic circles.

Besides the widow there survives only the son, Dr. E. R. Mugrage, who is an instructor in medicine at the University of Colorado.

LIST OF DELEGATES

To the 1926 Annual Meeting of the Colorado State Medical Society, at Colorado Springs, September 21, 22, 23, 1926

Constituent Society	Delegates	Alternates
Arapahoe.....	W. C. Crysler.....	
Boulder.....	C. L. LaRue.....	H. R. Dietmeier
".....	G. H. Cattermole.....	R. B. Miller
Chaffee.....	C. Rex Fuller.....	
Delta.....	Harry A. Smith.....	A. C. McClanahan
".....		L. A. Hick
Denver.....	W. H. Halley.....	H. S. Finney
".....	G. P. Lingenfelter.....	
".....		W. E. Sunderland
".....	L. V. Sams.....	W. H. Crisp
".....	O. S. Fowler.....	W. W. Williams
".....	C. F. Kemper.....	
".....		G. W. Blickensderfer
".....	H. W. Stuver.....	G. W. Miel
".....	C. G. Hickey.....	Melville Black
".....	L. M. Van Meter.....	C. N. Meader
".....	M. J. Gale.....	C. T. Burnett
".....	L. C. Cook.....	C. H. Darrow
".....	M. M. George.....	L. W. Frank
".....	W. C. Finnoff.....	G. L. Monson
".....	T. R. Love.....	G. A. Moleen
".....	J. H. Allen.....	J. M. Shields
".....	C. E. Pate.....	M. T. Bigelow
".....	J. G. Ryan.....	G. K. Olmsted
".....	H. L. Hickey.....	W. C. Bane
".....	R. G. Packard.....	P. J. Connor
".....	G. C. Wallace.....	O. E. Coleman
".....	J. S. Chase.....	R. G. Davenport
".....	A. H. Harris.....	S. C. Wilcox
".....	H. W. Snyder.....	L. I. Miller
El Paso.....	F. A. Faust.....	W. A. Campbell, Jr.
".....	O. R. Gillett.....	T. J. Evans
".....	A. M. Forster.....	Z. H. McClanahan
".....	L. W. Bortree.....	T. G. Corlett
".....	A. C. Holland.....	J. J. Mahoney
Fremont.....	R. E. Holmes.....	D. A. Shoun
Garfield.....	W. W. Crook.....	F. W. E. Henkel
Huerfano.....	J. M. Lamme.....	A. F. Stanley
Kit Carson.....	W. L. McBride.....	H. L. Williams
Lake.....	F. N. Cochems.....	C. E. Condon
Larimer.....	D. O. Norton.....	W. F. Brownell
".....	T. C. Taylor.....	W. B. Hardesty
Las Animas.....	L. T. Richie.....	O. F. Adams
Mesa.....	G. C. Cary.....	H. R. Bull
Montrose.....	Edgar Hadley.....	F. G. Didrickson
Morgan.....	Not reported.....	
N. E. Colorado.....	F. A. Alcorn.....	E. P. Hummel
N. W. Colorado.....	E. L. Morrow.....	W. W. Sloan
Otero.....	G. L. Kerley.....	
Prowers.....	W. O. Sheller.....	Geo. S. Williams
Pueblo.....	H. T. Low.....	
".....	G. P. Pipkin.....	
".....	F. E. Wallace.....	
San Juan.....	A. W. Robbins.....	J. R. Trotter
San Luis Valley.....	Not reported.....	
Teller.....	Not reported.....	
Weld.....	C. B. Dye.....	

Page Marshall

Talking movies and a hat band that doesn't get streaked by the rain are two of the world's needs not yet supplied, according to the British Institute of Patentees. The institute has just issued its booklet on "What's Wanted" as a guide to inventors who may be slightly uncertain as to what to invent.—Science Service.

Niepce, father of photography, made his first camera out of a cigar box and lenses borrowed from his grandfather's solar microscope.

MEDICAL SOCIETIES

COLORADO GENERAL HOSPITAL

The event toward which this institution has been looking for the last few months is a thing of the past. From March 23 to 26, inclusive, the staff of the hospital in conjunction with the Faculty of the School of Medicine and the Psychopathic Hospital held clinics on many subjects of particular interest to the medical profession. During that time it was very gratifying to its sponsors to note first, the large attendance and second, the interest displayed.

As this was the first time that anything of the sort had been attempted on such a scale in this region, those in charge had no idea as to outcome, and had taken up the matter with considerable trepidation. The responses received in reply to the notices sent out had of course been encouraging, but could not be taken as final.

During the time of the clinics a total of 358 physicians registered, with practically half from outside of Denver and its immediate vicinity. Ten men in attendance were from without the state. A large proportion of these men stayed for two or more days. The above figures do not cover the total attendance for some men entered and in the confusion ensuing at times were not registered. The physicians outside of Denver came from 72 towns, 5 other states and 2 foreign countries.

It is the intentions of its sponsors that these clinics be given annually, and in view of the marked interest displayed, the complimentary remarks made, and the numerous letters received with their favorable comments, the undertaking of another clinic is practically assured.

COLORADO GENERAL HOSPITAL

The Superintendent's office has given out the following figures which cover activities for the month of March:

Patients in hospital March 1, 1926.....	84
Patients admitted during the month.....	177
(Newborn included above).....	10
Patients discharged during March.....	142
Patients dying in the hospital.....	10
Patients in the hospital April 1.....	108
Average number of hospital patients daily.....	96.2
Number of counties recresented.....	19
Autopsies.....	7
Men admitted.....	51
Women admitted.....	76
Children admitted.....	50

During March the Out-patients' Department cared for 2,685 patients, of which 485 were new cases. The daily average was 99. As all new cases are interviewed by the Social Service Department before admittance, approximately 8 percent of those desiring to enter were refused treatment.

E. R. MUGRAGE.
E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

This institution shared with the Colorado General Hospital in the activities of the clinic week. The clinics conducted in neurology and psychiatrics were well attended and the opportunity was given to visiting physicians to become better acquainted with this institution which is, and can

to a greater extent, perform work of great value in its field. Since this was one of the principal objects for which the clinic was conducted, the large attendance assured an increased dissemination of proper knowledge of this institution to the laity of the state through the proper channels, its physicians.

During the last few days of the month the Department of Occupational Therapy conducted an Easter sale of the many articles which had been made by the patients during convalescence.

The office of the Director has given out the following figures of the activities for the month:

Patients in hospital March 1, 1926.....	56
Patients admitted during the month.....	51
Patients discharged during the month.....	48
Patients dying in the institution.....	2
Autopsies.....	2
Patients in the hospital April 1.....	57
Number of counties represented.....	14
Men admitted.....	26
Women admitted.....	25

In the Out-patient's Department there was during an attendance of 129 patients for a total of 244 visits, 38 of these were new cases. The above data does not take into account the follow-up work so essential in an institution of this character, nor of the work of the traveling clinics and surveys conducted at different points within the state.

E. R. MUGRAGE.

COLORADO OPHTHALMOLOGICAL SOCIETY

The regular meeting of the Colorado Ophthalmological Society was held Saturday, December 19, 1925, in the Assembly Hall of the Medical Society of the City and County of Denver, Dr. Edward Jackson presiding.

Dr. James M. Shields, Denver, reported a contusion of the right eye in a football player, 16 years of age, October 16, 1925. Examination of this eye five days later, revealed a turbid aqueous, lack of iris luster and a posterior synechia at 6 o'clock. On October 28, the right eye was painful and the anterior chamber filled with blood. The left eye showed a beginning iritis with exudates into the anterior chamber. Improvement was noted on November 20, atropin was stopped for the right eye and for the left on December 16th. Fundus examination O.D. questionable hyperemia O.S. Disc blurred and elevated, no definite outline; retinal vessels extremely tortuous and in places lost to view in the swollen retina; minuate hemorrhage just below the macula. Discussed by Drs. W. C. Finnoff, John McCaw, William H. Crisp, C. E. Walker, George L. Strader and Edward Jackson.

Dr. William C. Bane, Denver, reported the case of a male, age 65, who first consulted him one month ago because of poor vision. Form field normal; pupils react to light and accommodation, unable to improve vision with lenses. In the macular region of the right eye are seen finely mottled changes. While in the left macular region are numerous sago-grain spots covering an area of two disc-diameters. The case was considered one of senile changes in the macula, possibly simulating drüsen. Discussed by Drs. Frank R. Spencer, J. A. Patterson, W. C. Finnoff, E. R. Neepner, David Strickler and Wm. M. Bane.

Dr. George L. Strader reported a case of a female, age 22, seen first in April, 1923, at which time she was convalescent from an attack of influenza complicated with chicken pox as diagnosed by the family physician.

Examination. There were several ulcers on the conjunctiva of the lower lids and the skin on the soles of her feet was exfoliating. The lids were swollen and the margins red; marked photophobia. Because of the unhealed ulcers of the conjunctiva, a diagnosis of small-pox was favored. There was no corneal involvement, treatment was instituted and the patient returned home. She was not seen again until July, 1925. This examination showed extensive symblephara between the conjunctiva of the lower lid and the bulbar conjunctiva. The upper lid had the appearance of an old trachoma. In several places, small areas of skin epithelium had invaded and replaced the conjunctival epithelium; on the conjunctival surface of the lower lids were several small openings from which secretion was expressed. There has been a definite shrinking of the conjunctiva, during the past five months. In an occasional case of chicken pox the vesicles are so large that they resemble somewhat the bleb of pemphigus so that it is possible that the original illness was pemphigus rather than chicken pox. Discussed by Drs. Wm. M. Bane, C. E. Walker, W. C. Finnoff, William Sedwick, E. R. Neepner and G. L. Strader.

Dr. William H. Crisp, Denver, presented a man aged 58 years, with severe injury to the left eye. There had been profuse extraocular and intraocular hemorrhage. Later a large subconjunctival rupture of the sclera became visible about one-third of an inch to the temporal side from the limbus, and it also became evident that the lens was dislocated moderately backward. The blood in the vitreous had been rapidly absorbed, but after about nine or ten days, there remained in the posterior fourth of the vitreous chamber, a bright red, somewhat indistinctly visible mass, covering a large part of the fundus, and which did not seem to change appreciably from day to day. It was thought that this mass might have represented a choroidal detachment. On the evening of December 17, the patient began a severely painful attack glaucomatous in character. The vision had been almost completely abolished since the injury. Another interesting feature of the case was the presence in the anterior chamber, about two days after the injury, and for a period of about twenty-four hours, of a perfectly regular, straw-colored, discoid structure measuring about two millimeters in diameter, shaped like a miniature crystalline lens and resting upon the upper inner margin of the pupil. It was suggested that this might have been the remains of a mold of blood clot from which the colored constituents had been absorbed. Discussed by Drs. Wm. M. Bane and C. E. Walker.

Dr. George F. Libby, Denver, reported the case of P. H. L., male, aged 34 years. Last April, the patient first noticed lateral diplopia, with inability to rotate the left eye outward. When first examined on May 21, 1925, there was 32° of esotropia. Vision and the fundus oculi were normal. Examination of the mouth then showed three devitalized, infected teeth, and one impacted 3d molar that was considered suspicious. All four teeth were extracted and the abscess-cavities were curetted. Wassermann and kidney tests were negative.

On May 25, the esotropia for distance was 24°, June 1 and 10, 20°, October 20, 28° and December 9 and 19, 15° for distance and 6° for near. No medicines had been given ex-

cept dilute hydrochloric acid and pepsin for cloudy urine, with excess of phosphates. Discussed by Drs. F. R. Spencer and C. E. Walker.

Dr. William C. Finnoff exhibited two cases of bilateral congenital ptosis and marked epicanthus in a father and daughter, and reported a third case in the same family of another daughter 4 months old. These are the only children. There are no other congenital malformations and the family history was negative.

DONALD H. O'ROURKE,
Secretary.

BOOKS RECEIVED FOR REVIEW

CHEMICAL PATHOLOGY. By H. Gideon Wells, Chicago. W. B. Saunders Company. \$8.50.

A TEXTBOOK OF PHYSIOLOGY. By William D. Zoethout, Chicago. C. V. Mosby Company. \$4.50.

LECTURES ON NUTRITION. A series of lectures given at the Mayo Foundation and the Universities of Wisconsin, Minnesota, Nebraska, Iowa and Washington. W. B. Saunders Company.

LECTURES ON HEREDITY. A series of lectures given at the Mayo Foundation and the Universities of Wisconsin, Minnesota, Nebraska, Iowa and Washington. W. B. Saunders Company.

MEDICAL CLINICS OF NORTH AMERICA. Tulane University Number. Volume IX, Number IV., January, 1926. W. B. Saunders Company.

SCOLIOSIS. Rotary Lateral Curvature of the Spine. By Samuel Kleinberg, New York. Paul H. Hoeber, Inc.

LISTER AND THE LIGATURE. Compiled by the Research Readers of the Scientific Department. Johnson and Johnson.

PSYCHOANALYSIS AND BEYOND PSYCHOANALYSIS. By Leonard L. Landis. American Association of Independent Physicians.

HEADACHE. By Dr. Thomas F. Reilly. P. Blackiston's Son and Company.

EARS AND THE MAN. By Annetta W. Peck, Estelle E. Samuelson, Ann Lehman. F. A. Davis Company.

INTESTINAL TUBERCULOSIS. By Lawrason Brown and Homer L. Sampson, Saranac, New York. Lean and Febiger.

OPHTHALMIC NEURO-MYOLOGY. By G. C. Savage, New York. Published by the author.

THE SURGICAL CLINICS OF NORTH AMERICA. December, 1925. Volume V., Number VI. Philadelphia Number. W. B. Saunders Company.

THE PHARMACOPOEIA OF THE UNITED STATES OF AMERICA. Tenth Decennial Revision. J. P. Lippincott Company.

FACTS ON THE HEART. By Richard C. Cabot, Boston. W. B. Saunders Company.

In 1921 the city of Salem, Ohio, suffered an epidemic of typhoid fever which in round numbers cost the community half a million dollars. The epidemic resulted from an attempt of the city fathers to save \$1,500 by substituting a tile pipe for an iron one in the construction of the sewer system.—Metropolitan Life Insurance Company.

Certain soil bacteria were found to have the same effect on plant growth as vitamins have on animal growth. by Dr. Florence A. Mockridge of Swansea, England.

BOOK REVIEWS

Intravenous Therapy: Its Application in the Modern Practice of Medicine. By Walton Forrest Dutton, M.D., Formerly Medical Director, Polyclinic and Medico-Chirurgical Hospitals Graduate School of Medicine, University of Pennsylvania; Visiting Physician to the Northwest Texas Hospital; Visiting Physician to St. Anthony's Sanitarium; Director Medical Research Laboratories, Amarillo, Texas; Lieutenant-Colonel Medical Officers' Reserve Corps, U. S. A. Illustrated with Sixty-four half-tones and line engravings, some in colors. Second revised and enlarged edition. Philadelphia. F. A. Davis Company, Publishers; 1925. Price \$6.00.

This excellent work, in one volume, consists of two parts, the first on general technic of intravenous therapy and the second on intravenous medication.

Part one is introduced by an outline of the history of Intravenous Therapy. Following this is an excellent account of intravenous technic in which the dangers as well as the beneficial results are carefully pointed out.

Part II considers the application of this therapy in disease, giving a short and concise symptomatology of a greater part of Osler, followed by a list of drugs useful in these conditions. The attention is called to the conditions in which the intravenous route obtains quick and satisfactory results.

WILLIAM W. HAGGART.

Applied Biochemistry. By Withrow Morse, Ph.D., Professor of Physiological Chemistry and Toxicology, Jefferson Medical College, Philadelphia. Octavo of 958 pages with 257 illustrations. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$7.00 net.

This book is a heroic attempt to compile a text book of biochemistry that would be up to date. The general organization of the book is good. It is evident that the author has scanned the American literature more than that of foreign countries and the book is unquestionably a loser thereby. The portraits of famous chemists are almost entirely those of American workers. This is probably a reaction against the idea that only the work of foreign workers is worth while, but it certainly gives the students a one-sided view of the whole field of biochemistry.

The book contains a large number of mistakes which detract greatly from the value of the book. The following are typical: The pH of decinormal alkali is given as 14 on page 39, and the statement is repeated on page 40. The formula for lactic acid on page 141 is that of glyceric acid. The formulae for copper complexes, given on page 154, are open to question. The formula for picric acid, on page 157, is that of a nitrite rather than a nitro compound. The same thing is true of picramic acid. The formulae for glucose and fructose are confused on page 166. The formula for alpha methyl glucoside on page 183 shows the methyl group attached directly to a carbon atom. The method for the preparation of glycogen, on page 185, would never yield any glycogen. The discussion of baking powders on page 225 is far from the truth. This is typical of what one finds throughout the book.

The reviewer would hesitate to use this book in his classes.

R. G. GUSTAVSON.

TUNING IN

American Board of Otolaryngology

In addition to the examination held at Dallas on April 19th and at San Francisco on April 27th, another examination will be held at the Otolaryngological Clinic, Royal Victoria Hospital, Montreal, on Tuesday, June 1st. Information may be secured from the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

THE PALMAR METHOD

(Extended palm, shekels pouring in.)

It was a cold, gloomy depressing afternoon. The doctor sat in his office and restlessly waited for another patient. None had come, since before lunch, and it was now four o'clock.

As far as business was concerned, the day had almost been a failure.

For twenty years, the doctor had gambled his time with the public, and had won or lost, according to season and epidemics.

Busy days, too short for all that he had to do, night calls after a full day's work, a season of weariness, then a slack time with no business. A gamble wondering whether a patient would need his service, or the afternoon deal him a blank.

A large, virile man, of the middle forties, anxious to be up and doing, meeting the world and conquering disease. Yet hidden in a small office, in a large building, in a big city, tied by ethics, unable to proclaim his honesty and excellence in his profession, he sometimes wondered if all the time and money, spent in preparation for his work, were not wasted.

Across the street, Dr. Famo who advertised in the daily paper, was continually busy directing several white gowned fresh looking girl assistants in relieving all the ills of mankind, by the simple process of releasing impinged spinal nerves. Every day, this magnetic doctor worked from early to late, treating many patients by a method known as CKI*YI PRACTIC. (Curing catarrh, hay-fever, migraine, head-noises, deafness, tooth-ache and eye strain by restoring function of spinal nerves controlling these diseased areas), and by judicious advertising.

Upon his car, a good one, the eminent "Ki-Ki" practice man had the emblem as the medical man. Traffic officers waved him right-of-way. The butcher called him "Dock" and the minister called him "Doctor". And why not? The glorious state, in which he lived, had issued him a gold-sealed license, duly stamped and recorded, setting forth the fact that he was a Doctor of Ki-Ki Practice.

Sometimes his patients drifted into the office of the regular doctor to ask some free advice about the baby or to know what was good for a cold. They might remark that Dr. Famo had not helped their stomach trouble very much, but that their eye strain was wonderfully better and that they believed that sixty more treatments would cure them entirely.

Draw the curtain. It is night.

The regular doctor goes home. At dinner he tells his good wife that perhaps she better not buy that coat yet, that they were talking about.

The Ki-Ki man rushes home, orders the maid to serve dinner, as soon as he has dressed. He is going out, at once after dinner. He is undecided whether to go to the "Hack-driver's Ball," or to the meeting of the Civic Association. His wife joins him at dinner and asks if he had a good day. He replies, "Nell, this beats barbering all to Hell!"

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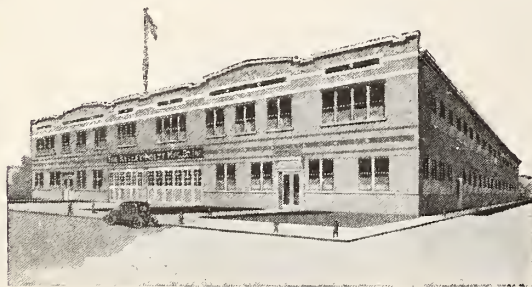
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How the Home Fails the Child

Four-fifths of 400 children brought to Massachusetts "habit clinics," failed to get what a "normal" home should give them, according to a statement by the Massachusetts division of mental hygiene.

The Massachusetts division assumes that a normal home should give a child not only food and shelter but training in conduct, affection, some of the culture of the group to which he belongs, opportunity for play, companionship with other children. According to this standard only one out of five of the habit clinic children had a real home. In most cases where the home failed the child it was through poverty, but for spiritual reasons. For instance, of 280 children, 83 per cent received no teaching from their parents of what right or wrong behavior is; 78 per cent received no effective control, nearly 50 per cent lived in homes showing no cultural interests, 41 per cent lacked opportunity for normal play and 10 per cent were unloved.—Children's Bureau.

Eradication of Animal Tuberculosis

Carrying the campaign of eradicating animal tuberculosis to areas where it is very strongly entrenched is one of the newer developments in the nation-wide program to rout the disease. A survey just completed by the Bureau of Animal Industry, United States Department of Agriculture, shows the aggressive action taken by many counties.—Department of Agriculture.

Consternation Among Bugs

Consternation among the bug pests of southern California is expected to follow the introduction of calcium cyanide, a new death-dealer which appears to be the most powerful agricultural poison yet known. Information just released here by Dr. Robert W. Poindexter, cyanide chemist, indicates that a long period of industrial research has now put calcium cyanide into the commercial arena. The product as now made in southern California is prepared largely from the nitrogen of the air and from natural gas.—Science Service.

Maya Ruins

Mayan ruins on British soil in Central America are the objectives of an expedition under T. A. Joyce, deputy keeper of the Department of Ethnography of the British Museum, London, and F. A. Mitchell-Hedges, now in the field, on a voyage of exploration in British Honduras.—Science Service.

The American Journal of Sciences

The ownership of The American Journal of Sciences, one of the oldest scientific publications in the country, has passed from the Silliman and Dana families, who have edited it for more than a century, to Yale University. Professor Edward S. Dana and Professor Alan M. Bateman of Yale will continue as editors.

Founded at New Haven in 1818 by Benjamin Silliman, the elder, the journal is known over the world as one of the leading scientific journals of America.—Science Service.

Physico-Chemical Institute

The Rockefeller Foundation has given \$200,000 to Spain for a physico-chemical institute. It is expected that this will serve as a nucleus for experimental scientific work in Spain whose laboratories are at present few and lacking in modern equipment.—Science Service.

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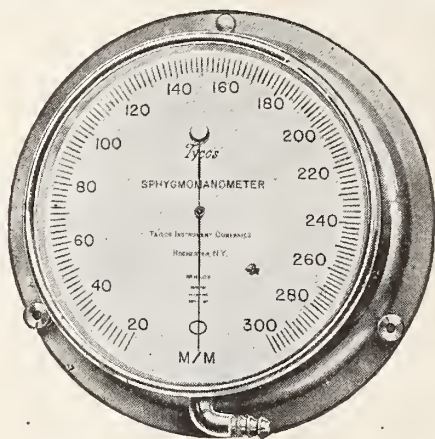
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TUNING IN

Prevention of Blindness

America has awakened to the need of saving the sight of its people; the National Committee for the Prevention of Blindness, which ten years ago consisted of three philanthropically inclined individuals, now includes in its roster of members and contributors more than 14,000 men and women representing practically every section of the country; the work of the committee which for years was financed by the Rockefeller and Russell Sage Foundations is now supported entirely by volunteer public contributions—these are some of the facts contained in a review of the ten years' work of the committee issued today by its managing director, Lewis H. Carris.

Aedes Egypti

As a result of the experiments it has been conclusively shown by Drs. J. F. Siler, M. W. Hall and A. P. Hitchens in a report in the Proceedings of the Society of Experimental Biology and Medicine, that dengue fever is transmitted by a mosquito known as *Aedes Egypti*. The investigators found that uninfected mosquitoes can pick up the virus causing the disease from the patient only during the first three days after its outbreak and from six to eighteen hours before it appears.—Science Service.

Inheritable Factor

Experiments on 50,000 mice belonging to hundreds of generations and yielding over 5,000 cancerous individuals, conducted over a period of sixteen years by Maud Slye of the University of Chicago, working under the auspices of the Otho S. A. Sprague Memorial Institute, give evidence opposed to the germ theory of cancer, and prove that resistance as well as susceptibility to cancer in mice is inheritable.—Science Service.

Healthful 1925

The year 1925 was one of the healthiest in the history of the state. Since the organization of the State Department of Health forty years ago, the general death rate was lower only once—in 1921; the volume of sickness, as indicated by the total cases of reportable diseases, was the most favorable in recent years. On the other hand, fewer births were registered last year than in any of the preceding six years—the birth rate, 20.6 per 1,000 population, marking the present minimum point on its downward path. The rate of natural increase of population, 0.8 per cent, has never been lower.—Health News.

Athletic Heart

College students need no longer fear that four years of hard football or track will leave them with a shaky "athletic heart" in middle age. Experiments by Dr. Burgess Gordon of the Peter Bent Brigham Hospital on men and animals revealed that the heart, instead of enlarging after strenuous exercise, actually shrinks. Furthermore, no enlargement of the heart resulted after prolonged athletic training.

Dr. Gordon made his observations on Boston marathon runners, and rabbits with normal and abnormal hearts. The rabbits were exercised to exhaustion, and x-ray pictures taken immediately afterwards revealed a shrinkage which took time to disappear. The strained hearts of marathon runners also got smaller, Dr. Gordon said, and did not return to normal for several hours.—Science Service.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

THE COUNTY SOCIETY

The great importance of the County Medical Society in the scheme of organized medicine is an accepted fact. It is the smallest and most fundamental unit of the American Medical Association. Apparently, then, it stands in no need of defense, but in reality the exact reverse is true. Deplorably poor attendance, inability to secure persons to present interesting and valuable medical papers and shiftlessness in the transaction of medical business are common complaints throughout the country. Further, we are led to conclude that such conditions are not materially improving but, quite to the contrary, are steadily becoming worse.

Like the fall of ancient Rome the decline in activity and influence of the County Society may be attributed to as many causes as there are commentators. Here we mention only one.

Physicians are too over organized in special medical societies and hospital staffs to show a lively interest in the County Society. Practically every city has its groups of specialists. These have their compulsory monthly attendance. Then there are more general medical societies which make the same requests of their members. Finally the organized hospital staffs, whether charitable or private, must be attended. Such meetings place almost unbearable demands upon the average city doctor's time. Lives there a physician who does not often ask himself what medical meetings he can best neglect? Unfortunately it is all too often the meeting of the County Society.

No attempt is made to decry these special society meetings. Their purposes and results are nothing but good. But to use a well known paradox "the good is often an enemy to the best". When some scheme is worked out whereby these various societies and staffs become in some way component parts of the County Society, contributing to its attendance and scientific program, then it will become an important deliberative and scientific body. Until that time comes, it will continue to remain a more or less spiritless organization carried on largely by the last efforts of an over-organized profession.

BIRTH CONTROL

Somebody had the nerve to throw a smelly gas bomb into the sacred ritual of the Denver County Medical Society. It was openly proposed to transform the sibilant whisperings of virgins, prurient and otherwise, into clarion vocables. The coverlid of decent reticence was to be ripped off the hymeneal couch just at the moment chosen by Mrs. Shandy to ask the father of the future Tristram if he had not forgotten to wind the clock.

I went to the meeting to hear and to see. Nothing was lacking in perspicuity. Would that our scientific programs were always so adroitly and luminously exploited.

I have been asked to present a brief glimpse of my own reactions to the occasion. Here it is, in the formulary of the Westminster Catechism:

1. What is probably the most important

science for the safeguard of human welfare? Answer. Genetics.

2. Does birth control enter into the practical operations of this science? Answer. Yes.
3. Does this practical work demand instructors with exceptional moral and intellectual qualifications? Answer. Yes.
4. Is there any profession especially qualified by training to advise in this field? Answer. Yes, that of medicine.
5. Is at present the attempted operation of birth control a condition or a theory? Answer. A condition.
6. Is it evident that the promoters of birth control are actuated by scientific concepts of the subject? Answer. No.
7. Would a knowledge of contraception (damnable word) imply partisanship for the method? Answer. No.
8. Is it ever expedient or justifiable to advise the procedure? Answer. Yes.
9. Is not the acquirement of that knowledge a duty? Answer. Yes.
10. Should we approve the present public exploitation of this theme? Answer. No.
11. Should we refrain like Mr. Pharisee from treating this topic *per se*? Answer. No.
12. What should a conscientious and not over cowardly doctor do in the premises? Answer. Sit tight, say little, listen, read and think a lot.—Contributed.

THE STATE MEETING

The fifty-sixth annual meeting of the Colorado State Medical Society will be held in Colorado Springs, September 21st, 22nd and 23rd. The House of Delegates will convene the evening of September 20th.

Following the plan established last year by the President, Dr. G. A. Boyd, the Program Committee is again planning a scientific exhibit in which it is expected that the various county societies will participate. This exhibit will attempt to show the causal relationship of the accomplishments of medicine to mortality.

It is planned to have several speakers of note from outside the state, among whom will be Dr. Dean Lewis of Johns Hopkins University, Baltimore; Dr. C. W. W. Poynter, University of Nebraska, Omaha; Dr.

Edith Boyd, University of Minnesota, Minneapolis, and Dr. Thor J. Jager of Wichita, Kansas. There will also be several members from our own University of Colorado on the program.

The meeting place will be the Municipal Auditorium, Colorado Springs.

THE LANDER MEETING

The twenty-fourth annual meeting of the Wyoming State Medical Society will occur July 12 and 13 at Lander, Wyoming.

To say that we believe this will be the most interesting meeting ever pulled off by our Society is putting it mildly. For years past each annual meeting has surpassed the preceding one.

Lander is one of the beautiful cities in Wyoming. No city and surrounding country has a more interesting early history than the place we are going to hold this year's meeting.

The doctors and dentists of Lander are doing all that is possible to make our visit one of pleasure and profit.

The program will appear in the next month's issue.

The following prominent doctors have agreed to present papers:

Dr. Maurice C. Fishbein, Editor A. M. A. Journal, Chicago, Ill.

Dr. C. W. Hopkins, Chief Surgeon, Chicago Northwestern R. R., Chicago, Ill.

Dr. Arthur D. Black, Dean Northwestern U. Dental School, Chicago, Ill.

Dr. Palmer Findlay, Omaha, Neb.

Dr. Jas. M. Patton, Omaha, Neb.

Dr. C. A. Roeder, Omaha, Neb.

Dr. C. F. Kemper, Denver, Colo.

Drs. Newcomer and C. A. Conyers, Denver, Colo.

Dr. A. T. McCormick, Louisville, Ky.

Dr. Glaister H. Ashley, Denver, Colo.

Dr. A. P. Kimball, Casper, Wyo.

Dr. Harris, Basin, Wyo.

Dr. E. R. Schunk, Sheridan, Wyo.

Dr. Fred J. Gassmann, Worland, Wyo.

After reading the names above you will have to admit that they are top-notchers and leaders in the American medical profession.

You have to attend one of our Wyoming

meetings to understand the fun we have. No society is more democratic in its make-up and actions. Politics are unknown, good-fellowship is everywhere and a man's a man among men.

And the ladies—God bless them. They come and help make our meetings what they are.

The Lander entertainment committee writes:

"The ladies of the Kiwanis Club headed by the doctors' wives plan on a breakfast the first morning; a tea that afternoon and a very interesting trip the next day out over the Indian reservation. The ladies can visit the pool and swim on the way to the fort. Reverend Roberts will give a little talk at the grave of Sacajawea, whom he buried.

"We want to be sure to include in the program a very definite plan of entertaining the ladies, so that our invitation for the doctors to bring their wives will mean something." So plan to bring your wives and have the best time you have ever had at any convention.

For reservations, write Dr. W. F. Smith, Lander, Wyo. The Noble Hotel rates: single rooms, \$3.00, and \$5.00 with baths. Without, \$2.00 to \$3.50. The Fremont Hotel: Single with bath, \$2.50; without, \$1.50; double rooms, \$3.50 and \$2.50.

So the nurses can't play with us? Oh! but that's hard luck. There is not a finer set of women in the nursing profession in the United States than our Wyoming girls, and we are sorry they cannot come to Lander.

Isabella M. Nelson, president of the Wyoming State Nurses' Association, writes: "We decided there could not be a joint meeting of the doctors and nurses because our Constitution and the By-Laws read that our meetings are to be held in June of each year".

Why can't two or three of you meet in June and adjourn until July? Any meeting can adjourn for lack of quorum. And we doctors and dentists know it would do your constitutions—if not your by-laws—a lot of good to give them a good jolt and you would surely get it if you would only come to Lander.

E. W.

BOOK REVIEWS

No one can hope to read all the new medical books. Lucky is he who is privileged to read only the best. To that end medical journals provide ample space for book reviews. In this respect Colorado Medicine is no exception. With the valuable aid of the librarian of the Denver City and County Medical Society an attempt is made to secure physicians who are familiar with the general subject matter of the books for review. The quality of the reviews so far submitted for publication has been uniformly high; but there are many other new books that still await the reviewer's appraisal. The physicians scattered through Colorado and Wyoming have a right to expect us to publish these reviews and thus assist them in their choice of valuable books. But this we cannot do unless they are submitted for publication. Therefore, we earnestly urge that reviews be completed and submitted at the earliest date possible.

Further we would urge that those of our membership who have as yet not been assigned books, call at our office or the office of the medical librarian and select some books of interest for review. To consider such work of little value and unworthy of our best efforts is far from correct. To be able to evaluate the worth of new medical books is probably of greater service to the profession than to write long articles in defense of accepted facts. It may even be an intellectual and literary undertaking equaling in merit that of reporting a few new cases of some rare disease, the omission of which would not materially detract from the world's fund of knowledge. To assist our confreres in the selection of good books from among Morocco bound verbiage is worth while.

90,175 Cancer Deaths

The most frequent seat of fatal cancer was the stomach and liver. This accounted for more than one-third of all the deaths from malignant growths.

Cancer of the female genital organs ranked second.

Cancer of the stomach, liver and female genital organs constituted over half of all the deaths from cancer.

Cancer of the breast took third place among the sites of fatal cancer.

A BIO-ETHNOLOGICAL STUDY OF THE ORGANIZED MEDICAL PROFESSION OF THE STATE OF COLORADO*

By C. D. SPIVAK, M.D.

DENVER, COLORADO

According to the Medical Directory of the American Medical Association, Ninth Edition, 1925, the population of the state of Colorado is 939,629. The number of physicians who look after the health of the people in Colorado is 1,837, or one physician to 511 inhabitants. The number of physicians who are members of the Colorado State Medical Society, as given to me by the secretary of the Colorado State Medical Society, is 1,038, which means that 799 physicians have for one reason or another not joined our ranks, or in other words, only 56.5 per cent belong to the organized medical profession. The following questionnaire was sent out by the Committee on Career of Members of the Colorado State Medical Society,† with a view of ascertaining certain data of a bio-ethnological nature:

Name in full.
Date of birth,
Place of birth.
Father's occupation.
Mother's maiden name.
First born or which child.
How many brothers.
How many sisters.
Primary education.
Secondary education.
College.
Medical training.
Graduated.
Internship.
Licensed.
Specialty.
Post-graduate courses.
Serving on staff of
Date married.
Wife's maiden name.
Children: Boys: Girls.

Practiced in _____ Date _____

Member of Societies (philanthropic, religious, medical, scientific, military, political, etc.)

Held office in societies (give title and date).

Author of books, articles, etc. (give title, name of periodical, year, volume, page if not already listed in Medical Coloradoana).

The committee received seven hundred and forty-seven replies, or 71.96 per cent of the membership. My paper therefore will be limited to a bio-ethnological study of that portion of the organized medical profession whose data we were able to obtain. Taking into consideration the fact that nearly three-fourths of the organized profession has responded, we can safely assume that the additional data which the committee on Career of Members hopes to obtain in the future will not materially change the composite picture.

Age

The youngest practitioner in Colorado is 24 years old and there are two who have reached the ripe age of 79. Dividing them by decades, we find that the greatest number of physicians practicing in Colorado are between the ages of 41 and 50, numbering 222, and the lowest between the ages of 71 and 79, numbering 19.

Place of Birth

Missouri and Illinois gave us the highest number of their sons, 74 each. Colorado and Iowa divide the honors, each giving 64. Ohio, 60; Pennsylvania, 59; New York, 47; Indiana, 34; Kansas and Michigan, 21 each; Wisconsin, 18; Nebraska, 17; Texas, 15; Kentucky, 14; Alabama, Minnesota and Massachusetts, 10 each. All the rest of the states are less than ten. Canada sent us 21 and the following foreign countries have supplied us with practitioners from one to eight each: Austria, Czecho-Slovakia, Denmark, England, Germany, Holland, Italy, Japan, Latvia, Lithuania, Norway, Roumania, Russia, Scotland, Sweden.

Father's Occupation

It is very interesting to find that 239 physicians were reared on farms. The doctor's atmosphere surrounded 103 and the merchant's 80. The sons of clergymen

*Presented at the annual meeting of the Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1, 1925.

†Committee on Career of Members: Dr. Philip Hillkowitz, Dr. A. Freudenthal, Dr. C. D. Spivak, chairman.

count 33, of lawyers 29. The lowly trades are represented by: baker 1; blacksmith 4; butcher 1; cheesemaker 1; coast pilot 1; miner 2; plumber 1; tailor 5; undertaker 1.

First Born or Which Child

The greatest number of physicians, members of the organized profession in Colorado, are first born children, whose number is 179, which is closely followed by 165 second born, and by the third born 117. One of our Esculapians has managed to make his appearance after fifteen others set the pace for him. Twenty-two were the only darlings of their parents and one had a constant companion while he was nesting.

How Many Brothers

One hundred eighty-eight had one brother each, 160 two brothers each and 184 three brothers each. One physician was brought up in the jolly association of ten brothers. The 618 physicians had in common two and a half brothers each.

How Many Sisters

Two hundred twenty-two had one sister, 155 two sisters, 101 three sisters and one had the benign influence of nine sisters. The 602 physicians had among themselves less than two and a half sisters which is not in accordance with current and accepted opinion that the number of girls is greater than that of boys.

Preliminary Education

Out of the 747 organized physicians nearly two thirds have attended college prior to taking up their medical studies.

Date Graduated from Medical School

The oldest graduate dates from 1868 and the youngest from 1924. The largest number of graduates come from the 1903 vintage—35 in number.

Specialties

So specialized has become the profession of medicine that we are presenting a list of some 70 specialists. The surgeons lead with 105. Eye, ear, nose and throat 36, tuberculosis 23, ear, nose and throat 22, ophthalmology 12, obstetrics and gynecology 11. There are a number of combined specialties which are making strange bed-fellows, as for instance, surgery and psychotherapy, X-ray and surgery, genito urinary and nerv-

ous diseases, psychiatry and physiotherapy. Of course we need specialties and specialists but the time has not come and probably will never come when we will be able to dispense with the valuable services of the general practitioner. Four hundred and thirty four of our colleagues are sticking valiantly to their daily grind of doing their best for the relief of all ailments human flesh is heir to.

Internship

It is gratifying to state that 494 physicians have served their internship in various hospitals prior to taking up the practice of medicine and 437 have taken one or more post graduate courses.

Served on Staff

Four hundred and ninety-nine have been honored by various institutions with positions on their respective staffs.

Married or Single

There are but few bachelors among our physicians — their number is only 31. Forty-four did not deign to reply to the question, so we are left in the dark as to their social status. Two have tasted the pleasures of married life, and will probably fall victims for the second time—they are divorced for the present.

Children

The future increase of population is not well taken care of by our brethren. 223 physicians had one boy each, 116 two boys, 31 three boys and ten four boys, two five boys and one six boys—altogether 604 boys. As to girls, the number does not bear out the general statistics, namely, 224 had one girl each, 103 two girls, 38 three girls, 8 four girls and one six girls—altogether 586 girls. The 747 physicians have brought into the world 1190 children which makes an average of one and one-half child per family. We will hope that the bachelors and the younger members of our profession, as soon as these sad facts are made known, will hasten to stem this suicidal course, and immediately proceed to make up for the sin of omission.

Officers in Medical Societies

Three hundred and thirteen have served as officers in various medical societies.

Medical Training

It is gratifying to note that Colorado graduates lead with 208 members, or 28 per cent of all who responded to the questionnaire. The other large groups are: Rush Medical College, 31; Northwestern University, 30; Jefferson College, 27; University of Michigan Medical Department, 22; University of Pennsylvania, 21; Harvard, 18; Bellevue, 11. The various medical schools of St. Louis sent us 35.

Contributors to Medical Literature

Of the 747 physicians 283, or 21 per cent, have had the inclination and the time to contribute their share towards the enrichment of medical literature. May their number increase!

The writer of this paper is fully aware of the fact that the above generalizations and conclusions, based on the data received from only one-third of the entire medical profession of the state of Colorado, cannot be taken as truly representing a composite picture of the healing craft of our great state. It is only after the committee will have been enabled to obtain biographic data as near one hundred per cent as possible of all the members of the medical men and women practicing in Colorado that the statistics thus secured will be amenable to scientific treatment.* For the present, the writer can only hope that this preliminary and inadequate study will awaken an interest in this line of statistical research and will be emulated by other state medical societies throughout the country.

Age	No.	Age	No.
24	1	52	30
25	1	53	28
26	1	54	20
27	3	55	18
28	10	56	15
29	12	57	27
30	11	58	13
31	10	59	18
32	16	60	10
33	18	61	13
34	9	62	16
35	19	63	7
36	20	64	10
37	19	65	9
38	15	66	6

*The house of Delegates of the Colorado State Medical Society has authorized the Committee on Career of Members to proceed with the bio-ethnological study, same to include all the members of the medical profession practicing in the State of Colorado.

39	22	67	11
40	14	68	7
41	18	69	9
42	19	70	3
43	22	71	4
44	15	72	2
45	28	73	4
46	24	74	1
47	24	75	2
48	19	76	2
49	22	77	0
50	31	78	2
51	27	79	2
Age not given	8		
Total			747

Place of Birth	
Alabama	10
Arkansas	3
California	2
Canada	21
Colorado	64
Connecticut	4
Delaware	2
District of Columbia	1
Idaho	1
Illinois	74
Indiana	34
Iowa	64
Kansas	21
Kentucky	14
Maine	6
Maryland	6
Massachusetts	10
Michigan	21
Minnesota	10
Mississippi	7
Missouri	74
Nebraska	17
New Hampshire	3
New Jersey	5
New York	47
North Carolina	1
Ohio	60
Oklahoma	1
Oregon	1
Pennsylvania	59
Rhode Island	1
South Carolina	1
South Dakota	1
Tennessee	9
Texas	15
Utah	1
Vermont	7
Virginia	7
West Virginia	7
Wisconsin	18
Austria	2
Czecho-Slovakia	1
Denmark	1
England	6
Germany	5
Holland	1
Indian Ter. Qua Paw	1
Italy	1
Japan	1
Latvia	1
Lithuania	1
Norway	1
Roumania	1
Russia	8
Scotland	2
Sweden	3

Father's Occupation			
Accountant	2	President State Normal	1
Actor	1	Presser Men's Clothing	1
Architect	1	Publisher	1
Army Officer	1	Purchasing Agent	1
Artist	2	Rabbi	3
Assayer and Chemist	1	Railway Conductor	2
Auditor	1	Railroad Man	2
Baker	1	Railway Agent	2
Bank Cashier	1	Railway Executive	1
Banker	7	Railway Office Work	1
Blacksmith	4	Railway Official	1
Bookkeeper	4	Railway Superintendent	1
Brass Founder	1	Ranchman	3
Broker	1	Real Estate	6
Business Man	1	Registrar U. S. Land Office	1
Butcher	1	Salesman	4
Cabinet Maker	2	Scale Inspector	1
Carpenter	5	Sea Captain	3
Carriage Maker	1	Shipbuilder	3
Cheese Maker	1	Soldier	2
Clergyman	33	Squire (Sweden)	1
Clerk	1	Stockman	8
Coast Pilot	1	Storekeeper for Steel Company	1
College Professor	2	Superintendent Safe Deposit Vaults	1
Commissary Dept. U. S. A.	1	Surgeon	2
Commission-Prod.	1	Tailor	5
Confectioner	1	Tanner	1
Contractor	11	Tavern Keeper	1
Dean Teacher's College	1	Teacher	10
Dean Theological Seminary	1	Tombstone Dealer	1
Dentist	2	Trades Dealer	1
Druggist	8	Train Dispatcher	1
Editor	2	Transportation Bus.	1
Engineer	4	Traveling salesman	3
Engineer, Civil	2	Undertaker	1
Engineer, Elec.	1	Upholsterer	1
Engineer, Locomotive	4	Veterinary Surgeon	2
Engineer, Mining	3	Occupation not given	22
Engineer, Stationary	1		747
Estimating Clerk (constructional work)	1	First Born or Which Child	
Executive	1	First born	179
Farmer	239	Second	165
Funeral Director	1	Third	117
Harness Maker	1	Fourth	68
Hotel Proprietor	2	Fifth	62
Insurance	9	Sixth	45
Irrigation Expert	1	Seventh	32
Jeweler	2	Eighth	19
Journalist	1	Ninth	14
Judge Supreme Court	1	Tenth	6
Judge, Probate	1	Eleventh	4
Landowner	1	Twelfth	2
Lawyer	29	Sixteenth	1
Lumberman	9	Only child	22
Manager Canal	1	Twin (no other child)	1
Manager Flour Mills	1	Not given	10
Manufacturer	15		747
Marble Worker	1	How Many Brothers	
Mason	2	One	188
Mechanic	1	Two	160
Merchant	80	Three	184
Meteorologist	1	Five	49
Mill Owner	1	Six	21
Millwright	1	Seven	7
Miner	2	Eight	6
Music Dealer	1	Nine	1
Nurseryman	1	Ten	1
Oil Producer	3	None	129
Orthopedic Surg.	1		747
Painter and Decorator	1	How Many Sisters	
Photographer	1	One	222
Physician	103	Two	155
Planter	4	Three	101
Plumber	1	Four	76
Post Master	1		
Postal Service	3		

St. Louis P. & S.	1	Eye, Ear, Nose and Throat	36
St. Louis Col. Ph. & Surg.	2	Feeble-minded	1
St. Louis University	10	Gastro-enterology	2
St. Louis, Washington University	18	Genito Urinary	11
Syracuse Univ.	1	Genito Urinary and Nervous Diseases	1
Tennessee, Univ. of	5	Gyn. Chr. Int. Med.	1
Texas, University of	2	Gynecology	6
Toronto, Trinity Med. College	1	Gynecology and Abdominal Surgery	1
Toronto, Trinity, Women's Med. Col.	1	Gynecology and Surgery	1
Toronto, University of	4	Health	2
Toronto, Victoria Med. Col.	1	Internal Medicine	42
Tufts College	1	Internal Medicine T. B.	1
Tulane Medical Dept., New Orleans	4	Internal, with T. B. predominating	1
Vanderbilt Med. Dept.	9	Internist with special attention to chest dis-	
Vermont, University of	2	eases	1
Vermont, Univ. of, Col. of Med.	1	Larynx-Rhinol and Otology	2
Virginia, University of	3	Lungs	1
Washington Univ. School of Med.	1	Nervous Diseases	2
Washington Med. Col.	1	Nervous and Mental Diseases	4
Western Reserve Univ., Ohio	1	Neuro-psychiatry	6
Western Reserve Univ. Med. Col.	1	Neurology	2
Western Reserve	4	O. & L. R.	2
Yale	1	O. B.	2
Not Given	8	Obstetrics	9
		Obst. & Gynecol.	11
	747	Obstetrics and Pediatrics	6
		O. L. A. R.	1
		Ophthalmology	12
		Ophthal Oto Larynx	1
		Orthopedics	4
		Orthopedic Surgery	3
		Oto-Laryngology	2
		Pathology	2
		Pathology and Tuberculosis Medical Research	1
		Pediatrics	21
		Physiology	1
		Physiotherapeutics	1
		Proctology	2
		Psychiatry	4
		Psychiatry & Physiotherapy	1
		Psychotherapy	2
		Public Health	1
		Radiology	4
		Radium & X-ray	1
		Radium and X-ray Therapy	1
		Roentgenology	8
		Skin, Diseases of	1
		Stomach and Intestines, Diseases of	3
		Surgery	105
		Surgery, Gyn. and Obstet.	1
		Surgery, Ob.	2
		Surgery & Psychotherapy	1
		Surgery & Urology	2
		Tuberculosis	23
		Women & Children	1
		X-ray	1
		X-ray & Surgery	1
		None	313

Date Graduated from Medical School

1924	1	1899	21
1923	7	1898	20
1922	12	1897	21
1921	15	1896	17
1920	20	1895	19
1919	18	1894	10
1918	7	1893	19
1917	17	1892	14
1916	22	1891	12
1915	18	1890	9
1914	16	1889	9
1913	24	1888	4
1912	28	1887	11
1911	15	1886	4
1910	26	1885	8
1919	16	1884	3
1908	17	1883	6
1907	24	1882	10
1906	24	1881	8
1905	29	1880	5
1904	31	1879	3
1903	35	1878	5
1902	28	1876	1
1901	21	1874	4
1900	23	1873	1
1868			1
Not given			8

747

Specialties

A. L. R. & Oral Surgery	1
Anatomy, department of Univ. of Colo.	1
Anesthesia	8
Bacteriology	1
Chest diseases	6
Chest and pleurae, diseases of	1
Children	2
Chronic diseases	1
Clinical diagnosis	1
Clinical laboratory	1
Clinical pathology	7
Dentistry	1
Dermatology	1
Drug addictions	1
E. N. T. and Head Surgery	1
Ear, Nose and Throat	22
Eye	4
Eye and Ear	5
Eye, Ear and Nose	1

College?

Yes	523
No	224

747

Post-graduate?

Yes	437
No	310

747

Internship?

Yes	494
No	252
Externe	1

747

Officers in Medical Society?

Yes 313
 No 434

747

Served on Staff?

Yes 499
 No 248

747

Contributed to Medical Literature?

Yes 283
 No 463

747

W. T. Little, Canon City: I feel we have all been both informed and entertained by this paper of Dr. Spivak's. Four years ago when our Society reached its fiftieth birthday, he suggested to a small group of medical friends that a fitting memorial would be a published history of this Society. The suggestion was received kindly. The expense was underwritten, and two years ago we received the publication. If any of you have not read the book, I suggest very strongly that you buy it or borrow it, because it is most interesting and valuable.

Now Dr. Spivak has approached medical history in this paper from a little different angle and he brings out a few facts that suggests certain questions. He finds that only 50 per cent of the medical profession in Colorado are members of this State Society, and the question of course arises, WHY? No doubt a goodly percentage of these men are, for one reason or another, undesirable or ineligible. Doubtless, a considerable proportion of them could and should be members of the State Society. He also brings out the interesting and rather amusing fact that our men are practicing as many as seven specialties, and 20 per cent of them are practicing one or more specialties. And then you remember the curious combination of specialties. As he says, they are curious bed fellows. Dr. Spivak says that his paper is incomplete. I feel that this story that he is engaged in is not merely a literary pastime, but is of definite value and a work that we should encourage him to continue.

Dr. Spivak (closing): Mr. President: It occurs to me that there is one specialty that has not come yet into its own. It is beginning to show here and there a tendency toward specialization; but as I grow older I begin to feel the necessity for it. It is the specialty of old age. It seems to me that it is just as important to have specialists for the beginning of life as it is for the ending of life. The two extremes of life should have specialists to attend to them. The specialty of diseases of children has been founded by Jacobi many years ago, and we now have all come to see that the specialty of the pediatrician is really a necessity. At the present time, the old man or even elderly man, begins to feel the same way. The general practitioner does not begin to understand the ailments and especially the mental attitude of elderly people, and it seems to me that the time has come when a new specialty must be added. I think in every city there should be at least one man who is going to take care of elderly men. They have peculiar ailments. They become irritable, their mental make-up change. People who all their lives have been perfectly nice to talk to and considerate of others, unselfish, when they reach a certain age suddenly become peculiar, irritable, unpleasant with their families. When there is such a specialty created the elderly people will not go on simply being a source of

trouble to themselves and a burden to their families, but they will go to a doctor, an old-age specialist, and consult him and tell him: "Here, I am beginning to forget things, I am beginning to be peculiar, something is wrong with me." Of course, we have to die some day; we have to return back to dust some time, but it is our duty to prolong life as much as possible.

CORRESPONDENCE

To the Editor of Colorado Medicine:

There is a striking contrast between the reference to Christian Science appearing in the article captioned "Autopsy Examination," in your April issue, written by a member of the staff of the University of Colorado, School of Medicine, and the statement of Dr. Richard C. Cabot, Professor of Clinical Medicine and Professor of Social Ethics in Harvard University, in an address delivered to Harvard students November 29, 1925. The member of the staff of the University of Colorado indirectly classes Christian Scientists with quacks and charlatans. Dr. Cabot said, as reported in the Harvard Alumni Bulletin, dated December 31, 1925: "Christian Science believes, as I have been stating that I believe, in the healing of disease by spiritual means." Then, after stating that most healing takes place without drugs or surgery, and his belief that in eight or nine diseases one can get help from drugs, Dr. Cabot continues: "Shall we admit that healing which always comes, as I see it, from the central force of the world, from God, can come to us through food and air, but not by drugs and by surgery? I do not see any reason to think so, and that is my difference with Christian Science. * * * I see no reason why we should admit only one of the different ways through which healing comes to our bodies. I want to take them all, and in that I disagree with Christian Science, the good effects of which I see on all sides. I have not the slightest doubt that it does good, that it cures disease, organic as well as functional, only I do not want anybody to say, 'And nothing else cures'."

It is true that Christian Scientists regard a radical reliance on God in spiritual healing as preferable to an attempt to rely, in some instances, on drugs and surgery, and in others on the spiritual means of healing. But at the same time, they greatly appreciate the candid and fair-minded recognition by Dr. Cabot that Christian Science does heal disease, organic as well as functional. It is safe to assume that fair and open minded investigation of Christian Science will impel any observer to at least the conclusion reached by Dr. Cabot, and Christian Scientists regard it as a certainty that the daily application of the teachings of Christian Science will take one to the ultimate conclusion that spiritual means alone are sufficient for healing. But in any event, there should be no occasion for unkind classification of those holding opposing views.

Respectfully submitted,

RALPH G. LINDSTROM,

Christian Science Committee on Publication.

Comment

The only apparent thing in common among the cults to which Dr. Mills casually referred is that particular attitude of mind so clearly rejected by Dr. Cabot in the above quotation, but still maintained by our correspondent. As to the relative worth of these various cults—each in its attempt to treat all sickness by its own particular method—scientific medicine has no concern. It accepts any method that will cure disease or alleviate suffering.—Editor.

EMERGENCY OPHTHALMOLOGY*

MELVILLE BLACK, M.D., F.A.C.S.,

Prof. Ophthalmology, Medical School, University of Colorado

Every year in my opening lecture to students at the Medical School, I say, "We do not desire to make specialists of you, but we would like to have you know enough ophthalmology to make a correct diagnosis and to apply intelligent emergency treatment."

I believe we are accomplishing this. There was a time when graduates in medicine had no instruction in ophthalmology except the little they could get by attending the clinic and that was not compulsory.

The average physician in a city takes little interest in ophthalmology because oculists are so handy he can get one in a few moments, day or night, to take charge of his cases. There are exceptions to this rule, therefore you may be interested in a few simple formulae which may at some time come in handy.

When to use Atropin

Many physicians are afraid to use it because they remember the bogey-man, glaucoma. Atropin may be used safely and is indicated in all severe ocular traumatism. We so often see cases where a few drops of atropin used early would have spelled success. The failure to use it at a time when it would have caused the pupil to dilate, resulted in permanent adhesions which later could not be broken away.

The differential diagnosis between acute iritis and acute glaucoma to many physicians is not clear. I hope to make it simple and easy. Just remember that in iritis the iris is congested and thickened, there is more of it than there should be; the result being that it occupies a larger amount of space than normal and therefore the pupil is encroached upon, it is contracted; i. e., it is smaller than that of the other eye. The iris is lusterless and dull in comparison with its fellow. Glaucoma on the other hand produces a condition just the opposite. The increased tension, caused by an enlarged vitreous body, pushes the lens forward and mechanically spreads the pupil until it is

larger than its fellow. The increased tension causes a corneal haze and close inspection should enable the observer to differentiate between a corneal haze and a lusterless iris or cloudy aqueous. The corneal haze of a glaucoma is like the blowing of one's breath on a cold piece of glass. The taking of finger tension by other than an expert is not to be depended upon. The differential diagnosis should be easy from the signs given.

There is one other symptom of importance and that is pain. The pain of glaucoma is many, many times greater than that of iritis. It is sometimes so great as to cause delirium and vomiting. The delirium and vomiting may switch the attention of the physician to other parts of the body and the real cause, the eyes, be ignored. It is therefore suggested as a routine measure that, when the patient is delirious and vomiting, the eyes be examined. If one or both eyes are very red, pupils dilated and corneae steamy, you do not need to look any farther for a cause. It is acute glaucoma of a most malignant type. To know what to do and to do it at once may save the patient's sight. Delay of a few hours may mean blindness. It is a well known fact that this type of glaucoma comes on in the middle of the night, for theoretical reasons I do not need to go into. The fact remains that it might cause delay to get an oculist out of his nice warm bed to come to your assistance.

There are two things which you can do in this emergency. One is to drop in the eye a one-half per cent solution eserine every five minutes until given six times. Massage of the eye, or eyes, should be **continuous** during this half-hour period. The second thing is to give the patient a bottle of citrate of magnesia. When you get your oculist he may add hot applications to what you have done and return in the morning to find the patient vastly improved. His further conduct of the case will probably be operative in order to prevent another fulminating attack. If it had not been for your

*Read before the County Medical Society of Denver, December 1, 1925.

timely interference there would have been a blind patient to operate upon.

Heat and Cold

I would like to say a few words about hot and cold applications to the eyes. There are two great indications for their use. Cold in traumatism and heat in deep idiopathic inflammations of the eyeball. The use of these two remedial measures is very simple. **Cold applications.** Place a block of ice in a basin. Tear up old muslin into three-inch squares, double twice to make a pledget one and one-half inches square and four-ply in thickness. If one eye only is to be treated, two pledgets will be enough; if both eyes, four will be needed. After the pledgets are cold and wet, the eye, or eyes, are covered and the changes made every half minute as long as they feel comfortable. **Heat:** A basin of water is provided and kept at a temperature as hot as the hand will bear. The best agent to convey this heat to the eye is a flannel cloth. It is better than cotton because it is lighter and not so soggy. Hot applications should not be continued beyond ten minutes at a time because it is harmful if kept up too long.

Ocular Injuries

Let us now consider the vast field of ocular injuries caused by chemical and thermal agents. A large percentage of these cases you will see first. They want relief and it should be your aim to give it and at the same time neutralize the cauterizing agent so that it will do no further damage. In the majority of instances the extent of the damage is almost instantaneous. The tears neutralize and wash out the offending agent. The exceptions are when the eyes are filled with lime, mortar or any pultaceous mass containing a cauterizing agent. The tears cannot wash away all of this material nor can they render it inert. It should be removed at once and the eye filled with a bland oil such as olive oil, castor oil, or petrolatum. Atropin should be instilled and the eye patched or bandaged. The further conduct of the case will be to prevent adhesions and pull the eye through with as little inflammatory reaction as possible—all of which cannot be gone into in a paper dealing with emergency methods.

An endeavor to neutralize an acid burn with alkalis and an alkaline burn with acids is just so much bunk. A bland oil serves a much more useful purpose. In the past there has been a tendency on the part of some physicians to prescribe cocain for the relief of pain as a part of the after treatment of such cases. After a few instillations it ceases to act as an anesthetic and only serves to increase the patient's discomfort. Because of epithelial desquamation from the cornea and conjunctiva, a pathway is opened for infection. Therefore its use as a remedy for pain is to be deeply deplored. Iced applications have the highest place as pain relievers in such cases.

Burns of the eye from hot metal, including curling iron burns of the cornea, are very common. The burn is almost always very superficial, the epithelium of the cornea alone being destroyed. It is painful and causes much anxiety on the part of the patient and the family. These burns are very simple and the epithelium rapidly reforms if the eye is kept closed. Iced applications will make the patient comfortable if applied for a few hours and then the eye should be bandaged until the corneal epithelium has been restored. This is evidenced by the burned area no longer taking a stain from fluorescein or methylene-blue. Burns from molten metal, especially solder, are common. Molten metal when dropped upon a wet surface explodes and flies in all directions. When it finds its way into an eye it sticks to the globe and causes a deep burn. The adhering metal must be removed and the eye then treated accordingly. It is a severe burn and upon healing leaves a scar. Atropin should be used to place the eye at rest and measures taken to keep down infection, otherwise an ulcer may form which may prove most disastrous.

Penetrating Wounds

Penetrating wounds may be made by all kinds of things, as you can readily imagine. When produced by small flying particles, such as metal, or rock, the all important thing is not to suppose that the foreign body has glanced off and not gone into the eye. There is only one way of being sure and that is to have a radiograph taken. It is

remarkable how frequently the oculist sees cases in which the physician has dismissed the case with the assurance that the foreign body did not lodge in the eyeball. Subsequent loss of vision causes such patients to see the oculist, who orders an x-ray, and a foreign body is found in the eye. It is hard to satisfy the patient that the physician who first saw him should not have ordered this done, and I think the patient is right. The physician can not exonerate himself if he "supposes" when he has the means at his command to replace supposition by positive knowledge. Penetrating wounds of the eye by knife blades, scissors, sharp sticks and other sharp instruments cause most distressing injuries. These occur most frequently in children. Such patients are frightened and intractable and usually have to be placed under a general anesthetic before any attempt can be made to repair the damage. I believe I am justified in saying that attempts at repair should not be made by anyone except a qualified expert, who has at his command the necessary delicate instruments as well as the skill to make the repairs. You naturally ask, "What can we do?" You can instill atropin and by so doing the pupil is dilated at a time when it is still dilatable; i. e., before inflammatory reaction makes it impossible. You can fill the eye with 1-3000 bichlorid ointment, put a gauze patch over it and strap it in place with adhesive plaster.

Every physician who is willing to do ocular emergency work should carry in his bag a 1 per cent solution of atropin sulphate, a tube of 1-3000 bichlorid salve, with and without atropin, and a one-half ounce dropper bottle of pilocarpin muriate. Ocular antiseptics, such as argyrol, neo-silvol and the like are not out of place, but are not of very much use in emergency work. A few gauze pads, three inches square, put up in glazed paper, will be found very useful. When the paper is removed the gauze is clean and is just the right size to cover the eye. It should be held in place by adhesive strips. A little clean cotton under the gauze will form a pad which will keep the eye closed and at rest.

Foreign Bodies on the Cornea

One last word on this subject and I will close. I wish to point out a fault in technique which is very common in the removal of foreign bodies from the cornea and which causes much delay in the healing of the corneal wound. Hot particles of emery, hot cinders and oxidizable particles of metal, burn the cornea at the point of contact. It is just as necessary to remove this burned area in which the foreign body is imbedded as it is to remove the foreign body itself. If this is not done the burned area must slough out and in so doing infection is likely to result and an ulcer form whose consequences may cause much loss of time to the patient as well as a corneal scar which will damage vision.

An eye with a foreign body burned into the cornea must be closed after its removal and kept closed until the part has healed. The only way to positively tell when the spot is healed is to stain it with fluorescein or methylene-blue. A 2 per cent solution of methylene-blue in a dropper bottle will prove a convenient and useful part of a physician's office equipment, if he expects to remove foreign bodies from the cornea. If he expects to do this work he should provide himself with a good, sharp, foreign body spud, as well as a binocular head magnifier. When we no longer have the amplitude of accommodation incident to youth, I defy anyone to tell when he has removed all the burned area, unless he uses a binocular head magnifier. It is also necessary to have some kind of a good light, but this involves still more office equipment. As I said in the beginning, I do not wish to make ophthalmologists of you. We have enough as it is, but I should like to emphasize as a parting injunction, if you cannot do a thing right, better not do it at all.

New York Governor Emphasizes Health Needs

A recent issue of the Health Officers' Weekly Bulletin of the New Mexico State Bureau of Public Health calls attention to recommendations regarding public health made by Governor Smith, of New York, in his latest annual message to the state legislature, particularly with reference to extension of state aid to local public health laboratories and the desirability of establishing the county as the unit for public health administration.—Public Health Reports.

PYELITIS*

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Pyelitis means an inflammation of the pelvis of the kidney and does not even imply disease of any other portion of the urinary tract.

The intimate relation between the kidney and the pelvis of the kidney, on the one side, and the intimate relation between the ureter and the pelvis of the kidney on the other side, make the possibility of a pyelitis, per se, highly improbable.

Before going further, I wish to state that this subject is of grave practical importance to all of us as I hope to show, in the context, and not merely an academic discussion.

We recognize various forms and types of pyelitis, such as acute pyelitis, sub-acute pyelitis, and chronic pyelitis. Again, we speak of pyelitis of infancy, the pyelitis of childhood, the pyelitis of pregnancy, and we talk vaguely of pyelitis occurring at all other stages of life, and complicating almost all acute diseases.

Now this is the urologist's sin; that he treats all cases of "pyelitis" alike. In other words, as soon as the diagnosis of pyelitis is made, and it is all too easily and lightly made, he proceeds to wash the kidney pelvis with one drug or another. Succeeding in reducing the temperature or otherwise alleviating the symptoms, he is content, until, within a few days the symptoms recur, when he repeats the pelvic lavage. Should the symptoms not recur, he is also content, and has a feeling of well-being, for he now feels that he has accomplished a cure and is entitled to much credit. The fly in the ointment, however, is, that many a patient with the same condition has recovered without such pelvic lavage. Urotropin and water in large quantities is also a cure, despite the fact that nobody believes that either the urotropin, or the water, or a combination of these two, ever cured anything.

When a person in good health is suddenly beset by a temperature which is fairly high, headache, general malaise, and no

set of symptoms which point toward a specific disease that can be recognized; when such person shows pus corpuscles in the urine, then a tentative diagnosis of pyelitis is made.

The urologist is now called in to segregate the urine, and if he find the pus coming from one kidney, and the other kidney urine clear, the chances are nine out of ten that he will make a diagnosis of pyelitis, and wash the kidney pelvis with a solution of some drug or other, depending on his particular like or dislike for that drug. With this procedure I have no quarrel, but I have a quarrel with his diagnosis.

For the same set of symptoms may emanate from an acute simple pyelo-nephritis, from an acute suppurative pyelo-nephritis (acute multiple abscess of the kidney), from a stone blocking the ureter where a pyelo-nephritis has existed before without symptoms, from a stricture of the ureter with a chronic pyelo-nephritis back of it; or the same set of symptoms may arise from an acute nephritis, whether it be an acute suppurative nephritis or a process which has not yet and may never go on to suppuration. Or, again, from a pyo-nephrosis that has been existent for some time without symptoms, and where, for some reason or other, drainage has suddenly ceased. And so one could go on naming kidney conditions, all of which may, under certain circumstances, cause exactly the same train of symptoms and signs.

When the patient, if it so chances, recovers from this acute condition and resumes his normal life, no further action is taken, the lavage or lavages having apparently sufficed.

A year later, or perhaps longer, a new attack occurs, the lavage again suffices, and the patient is again discharged as cured. This is particularly true in the so called pyelitis of childhood. It is a fact well known to physicians, and fairly well known to the laity, that pregnant women who suffer from pyelitis in one pregnancy, are very apt to have this condition recur in the next pregnancy.

*Read at the Annual Meeting of the Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1, 1925.

The most logical explanation for the occurrence of pyelitis in pregnancy, is that the position of the bladder and ureters is so altered that the urine cannot drain well. Most logical, because this pyelitis occurs most frequently in the fourth month of pregnancy, and it would be too early for pressure on the ureter by the gravid uterus to cause this. And yet it is perfectly clear to any thinking mind that interference with the outflow of urine would cause only a hydro-nephrosis, and since there is no infection present, there should be no temperature. Logically, therefore, there must be another factor in this pyelitis. And this other factor is infection. Hydro-nephrosis can and does occur repeatedly in the same individual without infection supervening. In fact, it is only occasionally that infection does complicate hydro-nephrosis. Why, then, should infection occur so frequently in the mild hydro-nephrosis of pregnancy? The answer is, that infection was present before the hydro-nephrosis occurred, but that drainage was good, and so no sickness resulted. As soon as drainage was interfered with in this mild and chronically infected kidney, temperature and prostration ensued. In other words, those women who have pyelitis during their pregnancy, either had a mild chronic pyelo-nephritis before they became pregnant, silent stone in the ureter or kidney, or some other damage to the kidney which permitted infection to take place hematogeneously; or some bladder condition which was the starting point for an ascending infection of the kidney.

Here, I must digress long enough to say that where I was prepared to segregate the urine, and not prepared to wash the kidney, I had just as many so called "cures" of an acute attack of pyelitis, as where I actually practiced pelvic lavage.

One can therefore readily see that acute pyelitis is, as a rule not only acute pyelitis, but an infection of the kidney as well; and since the pelvic lavage can wash the kidney pelvis only, and can in no way aid the infection of the kidney; and since if we leave an infected kidney, even though we may have cured the pyelitis by this one washing, the pyelitis is bound to recur promptly,

there is no conclusion to be drawn than that the pelvic lavage is unnecessary and foolish. Yet it is an incontrovertible fact that pelvic lavage frequently restores these people to perfect health, symptomatically. How can I reconcile these two contradictory statements?

Infection of the upper urinary tract must be taken as a whole, and it must be considered that when the pelvis of the kidney is infected, so is the kidney, and so is the ureter. In other words, ureteritis accompanies infection of the kidney pelvis and the kidney.

Let us consider for a moment the anatomy of the ureter. There are three narrow places, the first at the uretero-pelvic-junction; the second at the spot at which the iliac artery crosses the ureter, and the third in the juxta-vesical portion, or that portion of the ureter which is next to the urinary bladder. Of most importance to us, when considering infection, is the narrow part at the uretero-pelvic-junction. Whereas the ureter at its widest portion is almost a centimeter in diameter, at the moment of diastole, the diameter at this uretero-pelvic junction is not more than three or four millimeters, at the moment of diastole. A swelling of the mucous membrane at this uretero-pelvic junction, such as would occur with an inflammatory condition, whether caused by infection, or for other reasons, would prevent drainage of the kidney pelvis. A stricture of the ureter (and strictures are not at all uncommon), with an acute exacerbation of the inflammation which originally caused the stricture would produce exactly such a condition of affairs, also. This, then, would be an attack of acute pyelitis, with temperature, malaise, stomach symptoms, high leucocyte count, prostration and all that usually goes with acute pyelitis. And the cure would be the passage of an instrument through this closed ureter, so that the kidney pelvis might drain; and with such drainage would come a subsidence of all the symptoms, and a relief of the attack. The value of pelvic lavage, therefore, consists in the passage of the catheter, and in the dilation of the ureter. This has long been recognized and practiced

as follows:—When a pelvic lavage does not help the patient, a catheter is left in situ for a period of time, varying from six hours to three or four days, and this frequently relieves a condition that a mere pelvic lavage would not benefit.

As above stated, I have no quarrel with the procedure that is employed in dealing with an attack of so called acute pyelitis,—namely, a pelvic lavage; on the contrary, I approve of it, and that because an instrument has been passed to dilate the ureter and permit drainage of the kidney pelvis, and perhaps even the kidney itself.

The urologist who practices such procedure must, however, keep in mind the fact that there is more than an infection of the kidney pelvis, and must be prepared to deal with any sort of suppurative condition occurring in the kidney itself, such as subcapsular abscesses, which might demand decapsulation, multiple abscess of the kidney which might demand nephrectomy, or single large abscess which might call for nephrotomy, or any other pathology which might call for any other interference.

When a catheter has been passed to the pelvis of the kidney, and lavage carried out, and the patient does not improve, or improves but to have a recurrence within a day or two, an indwelling catheter is in order. When the indwelling catheter, after a day or two, does not accomplish the desired result, the surgical exposure of the kidney is demanded. It is unjustifiable, with a temperature present, to inject any substance, opaque to the X-Ray, for the purpose of making a pyelogram, as this is productive of much harm, and a pyelogram rarely helps to show acute suppurative conditions of the kidney.

In recurrent attacks of pyelitis, the fact must be recognized that we are dealing with either a ureteral stricture or a condition of the kidney itself, and that the pyelitis is only a symptom. Here, again, constant or oft practiced lavage of the kidney is unjustifiable, and the proper diagnosis should be made. If we are dealing with a chronic pyelo-nephritis, with acute exacerbations, a pyelogram made between attacks will disclose a “rigid” kidney pelvis. That is to say, a kidney pelvis in which either the pel-

vis itself is dilated, or the calyces are “clubbed,” with sharp markings obliterated, the isthmuses dilated, and the calyces minores wiped out. To the uninitiated reader of pyelograms, this picture is frequently interpreted as a hydro-nephrosis. This is in itself not such a grave error, for frequently the kidney is then fixed into place. In doing such an operation, no matter what type of operation is employed, the kidney is more or less decapsulated, and such decapsulation frequently cures the pyelo-nephritis. It is better, however, for the surgeon to understand the pathology he is dealing with, and the reason for the improvement, so that he may feel more sure in his future therapy.

Conclusions

1. Acute pyelitis, per se, can occur, no doubt, but must be extremely rare. When it does occur, it is of short duration, and cures itself promptly without interference.

2. Acute pyelitis, as a rule, is an infection of the entire upper urinary tract, and drainage, not lavage, is in order; lavage helps because drainage has been established.

3. With symptoms of acute pyelitis, one must always be on the lookout for acute suppurative conditions in the kidney, which suppurative conditions may require surgical interference.

4. Chronic pyelitis does not exist; the condition is chronic pyelo-nephritis; repeated lavage for each attack is unjustifiable, and when the disease bothers the patient considerably, a decapsulation of such kidney is the proper therapy.

5. Since the repeated attacks of pyelitis in childhood come under conclusion “4”, repeated washings of these kidneys, for the purpose of rendering them sterile of pus, micro-organisms, or both, is unwarranted, and cannot influence the condition.

DISCUSSION

George M. Myers, Pueblo: I want to compliment Dr. Spitzer on the general excellence of his paper, and also on his courage in rather severely criticizing his brother urologists, especially in their diagnosis of the condition. I agree with him absolutely in the terminology, and I believe that the term “pyelitis” should be discarded. “Pyelonephritis”, both acute and chronic, is much more accurate. Keyes claims that pyelitis never occurs without a corresponding nephritis of the kidney. Dr. Spitzer has emphasized the importance of a careful diagnosis. It seems to me that

there should be a routine examination made in these cases, starting with a complete physical examination, especially looking for any focus of infection which may be a contributing or causative factor in the renal infection. Also as to the urological examination, I believe that in practically all these cases plain x-ray examination prior to anything else often is of great importance. We all know the majority of renal stones and ureteral stones can be shown in x-ray pictures, and it is surprising where this routine measure is carried out the number of cases of renal calculi found which give symptoms of simple pyelonephritis, or pyelitis. Dr. Spitzer's explanation of pyelitis of pregnancy I think is extremely logical, especially where this occurs in the fourth month, or prior to the fourth month. It seems to me that after the fifth month that the pregnant uterus may have something to do with it as far as pressure is concerned. The cases I have seen of pyelitis of pregnancy have all been in the fifth month. But the important condition in pyelitis of pregnancy is, first, the stasis of the urine, either caused by the change in position or the pressure present. It is the stasis that is positive, and infection frequently follows. The presence of previous infection also is extremely logical. We all know that pyelitis or pyelonephritis of infancy is fairly common. These cases often clear up and have no further symptoms. If the patient be a woman and she become pregnant, all of a sudden she has pyelitis of pregnancy. We have all had brilliant results from the passage of ureteral catheters and have felt we obtained a wonderful cure. I would like to ask Dr. Spitzer a question. He passed over the value of urotropin and water very lightly, and I judge that he has not much faith in internal urinary antiseptics. So far, they have been very disappointing. I would like to ask him if he has had any experience whatever with the new urinary antiseptic hexylresorcinol which has lately been introduced by Dr. Leonard, of Baltimore?

H. T. Low, Pueblo: Dr. Spitzer always gives us a good paper, but I doubt very much whether Dr. Spitzer would read a paper of this type before the American Urological Society, because it is a known fact that we are all in accord that lavage of the kidney pelvis receives very little value in clearing up the infection in the pelvis or in the kidney. Kidd, of London, maintains that there is no such thing as pyelitis in itself, and that if there is, it is the way the British do things. But he goes ahead and says, if there is, that the line of demarcation is so slight that the human person, by precision or otherwise, is not able to diagnose a pyelitis from that of pyelonephritis. However, Dr. Spitzer made a statement that the pyelitis was an infection of the entire upper urinary tract. If that is so, I should like to ask Dr. Spitzer if he does not use some antiseptic solution following? I believe it assists in curing the pyelonephritis. Personally, I use some solution of sterile water in washing out the debris and in assisting small blood clots and particles of pus to escape from the urethra. I believe it is a mighty good therapeutic procedure. Recently there has been considerable work done on pyelitis of pregnancy. I think it has been shown in a series of cases of known pyelitis of pregnancy and cases of pregnancy where absolutely no infection is found that in the normal woman both ureters are dilated along about the fourth or fifth month. And that it is not a proposition of pressure or of obstruction of the ureters that maintains or that starts up the infection, but that of

inflammatory or physiological dilatation of the ureter. I thank you.

T. Mitchell Burns, Denver: I feel like Dr. Spitzer gave a wrong impression in reference to what I call infected kidney of pregnancy. I believe the term "infected kidney" will cover all cases seen in pregnancy. It has been my luck to see a large number of cases of infected kidney, and I want to state one or two points of diagnosis. These cases have repeated chills, some pain over the infected kidney, and a slight trace of albumen in the urine. When these symptoms are present you should get a urologist. I am surprised at the number of cases of infected kidney that we have found which were never suspected by the physicians who had previously examined these cases. The recovery in the cases I have turned over to Dr. Spitzer has been remarkable.

O. S. Fowler, Denver: I wish to express appreciation to Dr. Spitzer for presenting the argument today that infection of the kidney was caused by some type of obstruction, and that it was cured by drainage. I presented that subject sixteen years ago, and he disagreed with me then.

Dr. Spitzer (closing): Answering Dr. Myers regarding the courage to correct my brother urologists, I must admit that I have probably made more mistakes than they.

As stated in my paper, chance taught me that the lesion I was dealing with was not pyelitis alone.

On segregating the urines for the purpose of diagnosis, I found oftentimes that the patient recovered completely even though I did not wash the kidney pelvis. This gave me food for thought and this paper is the result of such experiences.

Dr. Myers struck a key note, I believe, when he spoke of children having pyelitis, with a recurrence of this pyelitis, when, in later life these children themselves become pregnant. I am of the opinion that these children have pyelonephritis and while the lavage of the kidney pelvis clears up the pyelitis, it does not clear up the nephritis, and so is worthless, except for the amelioration of troublesome symptoms. When, for any reason, an acute exacerbation of the nephritis recurs, the pelvis again becomes infected.

As regards internal urinary antiseptics, I hope for these, but do not believe that at the present time any such exist. The new urinary antiseptic, Hexylresorcinol, has, in my hands, accomplished nothing. Other urologists agree with me on this point. If drainage be established in infections of the urinary tract, these urinary antiseptics work; if drainage be not established, they fail: If drainage be established, results are obtained whether urinary antiseptics are used or not. Therefore, we must conclude that the internal urinary antiseptics are practically worthless.

In answer to Dr. Lowe: The doctor says I would not read the above paper before an association of urologists. This of course is probably intended by the doctor as an endorsement of the sentiments I have expressed, for the reason that reading such a paper to urologists would be like bringing coal to Newcastle. My reason for reading this paper here is that men in other fields of medicine may be unacquainted with the sentiments expressed, and if this be so, and if I have cleared the atmosphere, I will have accomplished something. The doctor wishes to know whether I do not believe that the antiseptic solutions used in washing the kidney pelvis are of some worth. He further asks whether I use antiseptic solutions after passing a ureter catheter. I use but one antiseptic, namely, nitrate of silver, and this I use because it produces hyperaemia, and this hyper-

aemia, in itself, is, according to our present knowledge, the best agent we have for the purpose of overcoming infection.

Kidney drainage is not dependent on the position of the kidney, nor on the shape of the ureter. Kinks of the ureter or curves of the ureter in no way prevent the emptying of the kidney pelvis. Thus a kidney might be loose, might in fact be very much out of position, nevertheless the pelvis might empty itself well. This we see frequently in very movable kidneys.

What then prevents a kidney pelvis from emptying itself in other cases where the kidney has been forced out of position?

The recent German literature has gradually been bringing to our notice the fact that when a kidney is forced out of position its sympathetic nervous supply, as well as the sympathetic nervous supply to the pelvis and ureter, is injured. The kidney pelvis and the ureter draw their sympathetic nervous supply from various plexuses, including the solar plexus, and the hypogastric plexus, and these supplies are probably torn loose in the very injury that tore the kidney loose. The pelvis and ureter is a strong muscular tube, which rhythmically contracts and dilates, and which is very capable of performing its function of expressing this secreted urine. When, however, it loses part of its nervous force, quite naturally, this rhythmic contraction is not so strong, and perhaps not so regular; if the injury to this nerve supply is sufficient, the expression of the urine

becomes imperfect, and dilatation of the pelvis or of the ureter, or both, ensues.

To prove that a kink does not interfere with the forcing out of the secreted urine, it is only necessary to consider a certain given natural kink in any ureter. At the point where the juxtavesical portion of the ureter joins the intra-mural portion of the ureter (and this is the narrowest portion of the ureter), there is a fixed kink with a sharp angle of about 110 degrees, and both these parts of the ureter are fixed. This makes a very acute kink at a very narrow portion of the ureter, and yet it in no way interferes with the passage of the urine from the kidney to the bladder, because nature has provided the musculature and nervous force to push this fluid by this point.

Dr. Burns wishes to know whether he has had the wrong impression regarding the pyelitis of pregnancy, his impression being that these patients must have pelvic lavage; and he speaks particularly of the pyelitis of pregnancy. My answer is that these patients must have their ureters catheterized to re-establish drainage of the kidney, and I am quite sure that this will relieve their condition without lavage. I repeat, however, that I have no quarrel with the procedure of washing the kidney pelvis; on the contrary, I approve of it, because to wash the kidney pelvis it is necessary to pass a catheter, and I feel convinced that the passage of such catheter will establish drainage, thus relieving the symptoms. We oftentimes find it necessary to leave a catheter in a ureter for a considerable period of time.

THE PSYCHIATRIC VIEWPOINT WITH REFERENCE TO THE NEUROSES AND PSYCHONEUROSES*

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Medical science has to its credit a remarkable development of insight into the infectious diseases, metabolic disturbances, deficiency processes and endocrine abnormalities. Investigators have concentrated with great enthusiasm upon certain types of mechanism and upon special organs and systems to very effective purpose. Animal experimentation has attracted much interest, but the patient himself has not always been given full consideration; he has been the host or the battle-field of a parasitic encounter, or the irrelevant receptacle of bewitching biological and chemical projections.

Discoveries made along these lines have encouraged the schematization of practically all ailments, including the neuroses and psychoneuroses in terms of internal medicine, with little or no reference to structuralization, individualization, instincts, emotions, or personality.

The disintegrating influence of the war, and the economic stress and strife of the post war period, the drive and urge, and needless hurry of modern civilization, has brought to the fore, great numbers of the misfits, or poorly adjusted or maladjusted individuals, and the importance of the psychoneuroses, both from the medical and economic standpoint, has become common knowledge.

We are confronted with the fact that the occurrence of human sickness can not be reduced to the simple terms of biology, chemistry or bacteriology. The physician no longer indexes symptoms solely, nor thinks in terms of disease entities only, but considers the problem to be the handicap of the individual with reference to his adjustment to life. The study of the patient himself has become one of importance and has attained a new dignity.

Each individual must learn to live with himself as he is, and with the world as it is.

From the standpoint of the study of the individual patient, this has meant a syste-

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matic and comprehensive analysis of the constitutional make up, of the influence of early experiences, of the attitude towards the minor and major issues of life, of the specific stress and strain of the life situation—domestic, social, financial and industrial—as well as the study of the component organs and systems. From the point of view of the treatment, it has meant a consideration of the influences which modify emotional values, remove undesirable inhibitions, and stimulate and develop latent sources of power.

From the standpoint of preventive medicine, it means the introduction into the field of hygiene, these same factors which curative medicine had for so long neglected. Mental hygiene deals with this aspect of preventive medicine. The term mental hygiene merely indicates hygiene adequately conceived in its application to mind and body. Mental hygiene insists that, in all programs of hygiene, attention should be paid to the health of the individual, as well as to that of the organs; to the emotional and mental attitudes, as well as to the nutrition and physical posture.

In child hygiene the child himself should be considered as well as his tonsils and teeth; his instinctive and emotional problems, his moods and social relations, his inhibitions and his waywardness should receive as intelligent attention as his vision and his nutrition.

In industrial hygiene the individual worker with complex human cravings, dissatisfactions and compensations, should not be lost sight of while we arrange for ventilation and illumination and the elimination of noxious chemical agents.

In the hygiene of the home it should be incumbent on the worker to have in mind not only problems of nutrition and of infection, but problems of faulty habit formation and of false emotional values which may permeate the domestic atmosphere.

In order that preventive medicine may carry out its task satisfactorily, it must organize the same facilities for the early recognition and treatment of nervous and mental disorders as for that of all other disorders.

Mental hygiene includes among its problems that of the large amount of ill health throughout the community, due to nervous or mental disorder frequently labeled physical invalidism. It includes those deviations of human behavior which are usually merely considered from legal or ethical standpoints, such as delinquency, alcoholism, prostitution, vagrancy, etc. It includes many social phenomena, such as the various manifestations of social unrest, of embitterment between classes, of strikes in various industries and activities. It also includes the deviations from the normal human behavior which are noticed in the formative period of human life, in the preschool and in the school period.

The study of the inadequate and inferior types of children is of great importance from the psychiatric viewpoint in order to avoid the disastrous effects of anti-social and criminal behavior later in life.

It behooves us as medical men to acquire the point of view from which we can consider man as a whole, as an adaptive mechanism, the product of the forces of heredity, environment and education. In other words, we must consider all phases of the human organism as a coordinated whole, and by so doing shift the center of interest from the disease to the patient and his personal problem of equation.

Mental symptoms are an expression of maladaptation of the whole personality, as represented by the entire biological equipment, physical as well as mental.

By far the greater number of victims of maladjustment are among those whose life's story is that of the neurotic. They feel keenly that they are not in the main stream of life's reality and in their frantic efforts to steer the life craft they manifest the neurosis as a substitute for real living. The neurotic is unhappy and projects his unhappiness into terms of physical ailment. The neurotic headache, fatigue, tremor, cardiovascular phenomena, and splanchnic crises are familiar to you all.

The neuroses and psychoneuroses are nervous disorders which cannot be stated in terms of physiology, anatomy and pathology. They are without any demonstrable

physical basis, and they appear to be chiefly of psychogenic origin.

Classification

The following is the classification of the neuroses and psychoneuroses most commonly followed:

1. Neuroses—Neurasthenia Anxiety neurosis.

2. Psychoneuroses — Hysteria Compulsion neurosis (Psychasthenia).

It will be necessary to consider each of these disorders separately, after which the treatment of the entire group will be discussed.

Neurasthenia

Neurasthenia is the great bugbear of the medical profession. Neurasthenics usually make the rounds of dozens of doctors. They also serve as a prolific source of income for the chiropractor and other charlatans.

The neurasthenic, as a rule, complains of a host of symptoms for which no physical cause can be found on careful examination. He delights in describing his troubles in considerable detail. Often, because of his frequent medical consultations and as a result of delving into medical literature, he has acquired a smattering of medical terminology.

The personality of the neurasthenic is quite characteristic. He is depressed, introspective, self-analytical and abnormally sensitive to external impressions. The slightest exertion, mental or physical, tires him. He is irritable, and his power of concentration is defective.

The neurasthenic is particularly prone to suffer from imaginary complaints. If he reads about the symptoms of some disease in a popular medical book, he is apt suddenly to realize that he has the same trouble. The male neurasthenic thus falls a ready prey to quack advertisements, especially those which promise to "restore lost manhood." The female neurasthenic quite commonly complains of all sorts of irregularities of the menstrual function; she likewise is apt to subscribe to some of the notorious patent medicines advertised for female complaints.

Anxiety Neurosis

The anxiety neurosis (*Angstneurose* of

Freud) is a mental disorder characterized by a constant state of anxiety and dread. Such patients live in continual fear of the calamities which may befall them or their loved ones. If such a woman hears the siren of a fire engine, she is immediately seized with dread lest her child be run over. If her child should develop a slight cough, she is unable to overcome the fear that he is afflicted with tuberculosis. Anxiety and dread are constant quantities, always present in the mind and ready to be attached to any suitable set of circumstances.

Neurasthenia and Anxiety Neurosis may affect either sex in persons between the ages of twenty and fifty. The central cause is unquestionably to be found in the sexual sphere. Whenever the normal sexual relations are replaced by practices which give excitation without consummation, there is danger of the development of a neurosis. Conspicuous causes are to be found in withdrawal and voluntary or enforced abstinence in the married. In the single, excessive masturbation and too much kissing and petting without gratification are the chief etiologic factors.

Any unfavorable condition affecting the general health may aggravate or contribute to the development of a neurosis. Mental overwork, severe emotional shock, infections and exhausting diseases are important contributory causes. Abnormalities of the endocrine apparatus, notably insufficiency of the adrenal, gonadal and thyroid glands, have been blamed for neurasthenia and anxiety neurosis, but they are probably only contributory causes. Focal infections probably do not play an important role in the causation of the neuroses, notwithstanding the fact that neurotic subjects are frequently benefited by the removal of these foci.

Hysteria. Hysteria is the most protean of all nervous diseases in its manifestations. There are few organic diseases of the nervous system which hysteria cannot simulate.

To enumerate the symptoms which may occur in hysteria would almost entail a complete survey of the field of neurology. It has been stated, and probably with a great deal of truth, that the underlying defect in hysteria is a state of abnormal sug-

gestibility, and that all of the symptoms simply result from suggestion.

The most constant of the symptoms of hysteria are the so-called hysterical stigmata. The latter include concentric constriction of the visual fields (telescopic vision in extreme cases), anesthesia of the fauces, hysterical clonus (sensation of a spike being driven into the head) and the globus hystericus (sensation of a ball in the throat).

The temperament of hysterical subjects is quite characteristic. They are very emotional and laugh or cry on a slight provocation. At times they are utterly unable to control their behavior. The emotional state is apt to exhibit rapid fluctuations. A mood of great hilarity may suddenly give way, without apparent cause, to profound depression.

In most cases of hysteria of long standing, major outbreaks of hysterical emotionalism, which bear a superficial resemblance to an epileptic seizure, occur. In such an attack, the subject starts to moan and then falls to the ground, but in such a manner as to avoid injury. He may then go through a pantomime of clownish mimicry, with a great display of passionate gestures and attitudes. He may cry, or laugh and weep alternately, pull his hair, or tear his clothing. Usually the hysterical outburst lasts much longer than that of epilepsy. Frequently the patient can be brought out of the spell by completely ignoring his antics, or by dousing him with cold water.

In the hysterical seizure, the patient does not bite his tongue or froth at the mouth and the eyes are closed instead of open. These are important distinguishing points from epilepsy.

The many symptoms of hysteria which occur in the somatic sphere are diversified in their nature and are subject to rapid transformation in the same patient. They will not be discussed here, as they properly belong to the realm of neurology.

Compulsion Neurosis. The compulsion neurosis, commonly called psychasthenia, constitutes that great group of psychoneuroses in which the patient is afflicted with morbid obsessions or dreads.

The obsession may take the reins of the subject's mind and completely dominate his behavior. In walking along the street, he may feel compelled to touch every lamp post. He may constantly be obsessed with the necessity of counting the number of persons in the street car. The obsession may take a criminal form, such as kleptomania, an irresistible impulse to steal, or pyromania, a morbid craving to set fire to things.

The morbid dreads take the same tyrannical hold of their victims as the obsessions. The subject may be mortally afraid of open spaces (agoraphobia) or, on the other hand, of closed places (claustrophobia). Other patients are afflicted with a fear of dirt (misophobia). They will repeatedly scrub their hands after touching such common objects as the doorknob or the bannister. A common form of misophobia is a dread of contamination from handling paper money.

The psychoneuroses may occur at any age, but they are most common between fifteen and thirty. The two sexes are about equally affected.

An important predisposing factor leading to the onset of the psychoneuroses is a hereditary history of some mental or nervous defect or of alcoholism. Such a family history can be obtained in approximately 75 per cent of psychoneurotic patients.

As in the case of neurasthenia and anxiety neurosis, any defect of the general health, mental overwork, or focal infection may predispose to the onset of a psychoneurosis or exaggerate such a condition already existent. It does not appear, however, that such causes occupy a primary role.

No pathologic lesions have been demonstrated to account for the psychoneuroses. The theory now generally accepted is that of Freud. Freud believes that hysteria and compulsion neurosis result from an unsuccessful attempt at repression of painful ideas of a sexual nature. A group of such painful ideas becomes detached from the main body of consciousness and struggles for its own form of expression. There results a conflict between this split-off group (complex) and the main body of consciousness. This conflict is finally converted in-

to somatic form to find expression as the hysterical symptom.

In the case of compulsion neurosis, the complex consists of the memories of a pleasurable accomplished, but immoral, form of perverted sex gratification. The main body of consciousness will not allow this complex to express itself, because of its disgusting nature, but permits it to take the form of a symbolic representation, which constitutes the psychoneurotic symptom.

Treatment. The neurotic or psychoneurotic patient is maladjusted to his environment. The treatment, in brief, consists in securing a psychologic readjustment. This is always difficult and requires a careful study of each individual case. A regimen which will work wonders in one case will utterly fail in another of the same condition.

The patient must be made to discard his old habits of life and to cultivate new ones along useful lines. Nothing is more constructive than a carefully planned regimen, not a stereotyped routine for every patient with a given condition, but a carefully conceived schedule for the individual patient.

Constructive, skilled, physical work is a most valuable remedy for this entire group of conditions. The patient should be encouraged to take his mind off his own illness and petty problems and to acquire an interest in some useful work, such as gardening or carpentry. For females, courses in domestic economy are of value.

The correction of the habits which gave rise to the neurosis is of course essential. The sexual life must be carefully investigated and rectified. In the case of the psychoneuroses, psychoanalysis often yields brilliant results. However, it should always be conducted by a trained psychiatrist. The lay psychoanalysts unquestionably accomplish a great deal more harm than good.

Finally, careful attention to the general health and the state of nutrition will repay one's efforts. Institutions are in a position to accomplish a great deal in the treatment of the neuroses and the psychoneuroses, mainly because of their facilities for reeducation and readjustment. The patient with a "nervous breakdown" is usually benefited by a short stay in a sanatorium,

largely because of the fact that the rational routine in a well conducted institution breaks the vicious circle in his mental processes and teaches him a more healthy mode of behavior.

Drugs in the treatment of the neuroses and psychoneuroses are of little value, except as symptomatic remedies or as agents used for suggestion in hysteria. During states of great emotional excitement, nerve sedatives are sometimes of value. They should be given only for a brief period. The most useful nerve sedatives are the bromides, in a dosage of one gram three times a day, and luminal, in a dosage of 0.1 gm. once a day.

SOME MEDICAL ADVANCES, 1925

The germ which causes distemper in dogs was discovered by Prof. Robert C. Green of the University of Minnesota.

A vaccine made from infected cattle ticks was found an effective protection against Rocky Mountain spotted fever.

Chicago bacteriologists found bacteria in oil wells more than 1,000 feet deep. This is a record depth for living organisms on land.

Hoof and mouth disease of cattle was fought in Denmark with serum treatment instead of by slaughtering the herds.

An extract obtained from the liver of animals was found to be effective in lowering high blood pressure of human subjects and may prove to be as effective in its field as insulin is in treating diabetes.

Extract from the parathyroid glands was found to be useful in speeding up the healing of broken bones.

The causative organism of sleeping sickness, encephalitis lethargica, was according to claims identified as a minute filter passing organism.

A new synthetic substitute for cocaine which can be used as a local anesthetic, has been discovered in Germany. It was named "totokain" and is prepared from some of the intermediate products in the manufacture of artificial rubber.

The thymus gland, an obscure ductless gland in the neck, was found to have influence on egg production in the case of pigeons.

Rats from which the thyroid gland had been removed, and which were suffering from cretinism as a result, were made to grow normally again by extra doses of pituitary extract.

Vitamin E, the presence of which in foods is necessary for reproduction of offspring, was shown to be present in a large variety of vegetable and animal substances.

THE MOSHER-TOTI OPERATION FOR CHRONIC DACRYOCYSTITIS*

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This surgical procedure is quite commonly known to oto-laryngologists and ophthalmologists, but for some reason—probably an hesitant attitude of the ophthalmologists who properly see and treat most of the cases and hesitate to invade intranasal and ethmoidal areas—has not received the cordial support which its singular efficiency as a cure for suppuration and stricture of the lacrimal sac and duct merits.

The problem of an obstructed lacrimal drainage apparatus has received attention from many workers and has been attacked surgically both intranasally, extranasally and by combining these routes. Operations based upon many different principles, some surgical, some not, have been devised and exploited. Some apparently simple and some highly technical have been advocated and in the hands of their originators are successful. Every opportunity offered by the anatomy or the surgical possibilities of the apparatus for its drainage has brought forth some method of cure.

The very fact that there are so many methods and so few sponsors for each is evidence sufficient that none has attained a degree of perfection satisfactory to the majority of ophthalmic surgeons.

Nonsurgical methods of treatment are not properly a part of this paper and will not be discussed.

Incision of a canaliculus, frequently performed to facilitate probing, by either the slow or rapid method, is rather universally hoped to be avoided by most ophthalmologists. Extirpation of the sac will cure the suppuration but too frequently will leave an annoying permanent epiphora which, even of slight degree, impairs the vision. Curretage and electricity are mentioned in passing.

One famous ophthalmologist is quoted as advocating, as a means of treatment, sending his patients to his competitor.

There is no doubt but that satisfactory

and permanent results can follow intranasal operations, but they all have the common point of failure in that the newly established channel of drainage into the nose tends to and most frequently does close; as well the handicap of performing a very technical and difficult procedure in a small, bloody area where identification of structure is uncertain and part of the technique carried out by touch, unguided by sight, i. e., in the dark.

Some years ago Toti proposed an external operation based upon the idea of draining the lacrimal sac into the nose and recently Mosher developed the idea simplifying and adding to the technique finally producing an efficient procedure.

Each step is performed under guidance of the eye and through the skin incision, if the operator prefers, in a field easily kept bloodless, where structures can be definitely identified, pathology diagnosed and extemporaneous modifications improvised to suit any individual case.

It is not intended to operate upon all cases of obstruction. Most cases, especially those seen in private practice where the infection is mild or absent, as in obstructions from mucous membrane vasomotor swellings, recover with milder methods commonly in use; but chronic repeated painful suppurations and persistent epiphora get well and stay well after operation. In this class of cases it is distinctly valuable.

It is also a form of accident insurance, as it were, against the occasional tragic result of the loss of an eye from trauma—even very minor trauma—when such occurs to an eye bathed in the pus of a dacryocystitis. Prophylaxis is really one of the great attainments of the medical art.

Mosher reports in the *Annals of Otology, Rhinology and Laryngology* of March, 1923, that forty-two (42) patients out of a total of seventy-one (71) operated upon, reported in answer to a follow up letter and an analysis of these showed over 90 per cent cure of the suppuration and over 75 per cent cure

*Read at the annual meeting of the Colorado State Medical Society, Colorado Springs, Sept. 29-Oct. 1, 1926.

of the epiphora. In July, 1924, he told me that the percentage of cure for both the epiphora and suppuration was considerably better than in the article alluded to above.

The essential idea of the operation is to expose the area of bone in which the sac lies; to make an unobstructed, clean cut smooth hole through this area into the nose, at least as large as the sac; to remove the inner half of the sac and place the outer half which contains the exit of the common canaliculus into the opening made through the bone. Thus tears gathered by the upper and lower punctum are drained through their canaliculi into the common canaliculus the exit of which now lies on the lateral nasal wall and are discharged into the nose in the middle meatus.

A suppurating sac is also drained directly into the nose and chronic inflammations disappear under such competent drainage.

Preoperation Procedures

Be sure there is no stricture or complete obstruction in the canaliculi, especially the common one. This information can be gained by the probe and syringe.

A gauze pack wet with adrenalin is placed in the nostril. This may be preceded by a spray of 1 per cent cocaine to lessen the acute sensitiveness of the nasal mucous membrane.

Should local anesthesia be chosen, that method used by the operator in his nasal surgery will suffice. Injections of one-half per cent or one per cent novocain with a very small addition of adrenalin into the extra nasal tissues will give satisfactory anesthesia. The adrenalin nasal pack is introduced before the induction of anesthesia either local or general, thus allowing time for the production of an ischaemic intranasal field.

I prefer general anesthesia.

The patient anesthetized, a post nasal pack is introduced. This of course may be omitted if a local anesthetic is used. The cornea may be protected by anointing with vaseline.

The Operation

The anterior end of the middle turbinate is removed intranasally by whatever method the operator prefers. It lies in such a position internal to the lacrimal bone and ascending process of the superior maxilla

through which an opening is made later, that, if it is not removed, post operative adhesions may occur and reproduce obstruction. Thus failure will follow an otherwise good operation. The lacrimal cell and agger nasi cell, if the latter is present, may be opened intranasally if preferred, or left to a later step of the procedure. I prefer to open it intranasally.

If the operator feels ill at ease within the nose, he may defer this intranasal portion until after the osseous opening has been made and remove the anterior end of the middle turbinate and ethmoid cells through the skin incision.

Care should be exercised not to wound the mucous membrane of the septum for fear of subsequent adhesions. If the septum is markedly deflected toward the side to be operated upon, a submucous resection and removal of the anterior end of the middle turbinate and opening of the anterior ethmoid cells may be helpfully done several days previous to the external operation.

The incision begins midway between the bridge of the nose and the inner canthus, at least 12 m. m. from the inner canthus, on a level with the summit of the globe, carried in a straight line downward a centimeter and a half to two and a half. The placement and carefulness of the incision has much to do with the scar. Too near the canthus or curved, results in a conspicuous, sometimes bowstring scar. The shorter the better, but it is fallacious to handicap your operation by too small an incision in order to avoid a scar. It is carried to the bone. The bleeding which follows is rather profuse and is readily controlled by Michel clips.

Then beginning above, the periosteum is elevated downward and backward thus turning the sac out of its position in the lacrimal bone and ascending process of the superior maxilla. A flat, sharp chisel is used and the elevation is carried a little beyond the crest of the lacrimal bone. Below the beginning of the nasal duct and the ascending process of the superior maxilla opposite, should be exposed.

The sac having been exposed and identified, an opening into the nose is made through the lacrimal bone and ascending

process of the superior maxilla formerly occupied by the sac. A small curette may be forced through the lacrimal anterior to the crest, or a Citelli punch may be used. The opening is enlarged anteriorly by removing part of the ascending process and for this a Kerrison punch is best. The opening should be as large as the sac in all directions, but should not come anteriorly as far as the skin incision, otherwise the incision when closed will lack underlying support and develop a visible scar. It usually does not extend beyond the lacrimal crest posteriorly. Too large a bony opening is better than too small a one and a common source of failure is a small opening which may later become sealed with a fibrous membrane from coalescing granulations, thus obstructing drainage. The edge should be smooth and the contour regular.

The nasal mucous membrane next receives attention. It is trimmed flush with the bony opening. A flat instrument such as a submucous elevator introduced into the nose assists in pushing this elusive membrane into the field of vision where it can be grasped and removed. Portions of the anterior ethmoid cells or perhaps part of the middle turbinate may project into the opening. If so they must be taken away. A ring conchotome is well adapted to do this. Through the completed opening the septum should be clearly seen, unobstructed by any tags of mucous membrane or projections of bone spicules of the intranasal structures.

Those operators who prefer to work entirely extranasally will be able to remove the anterior end of the middle turbinate and the anterior ethmoid cells as they proceed in making the bony opening. A well made, clean opening into the nose is an important factor of a successful result.

The operator's attention is now on the sac. His object is to remove its inner half. Having been identified as it was being elevated from its bony bed, it is grasped with a toothed forcep and a perpendicular incision is now made along all of its anterior margin and a horizontal one along all of its summit. The flap thus made of the inner half is grasped with forceps, its posterior

and inferior edges incised and it is removed. Either scissors or knife can be used.

Should the walls of the sac adhere, they may be separated with a small probe and a lacrimal probe passed through the punctum is a great help in starting the incision. Care should be exercised to handle the sac very carefully.

The inner wall of the bony nasal duct is now removed downward with a slender conchotome such as Langs, as far as the upper edge of the inferior turbinate, where a spur of firm bone is encountered which is fractured away with a chisel. The wall of the membranous duct is likewise handled.

Before closing the incision Mosher now sutures the anterior edge of the outer or remaining portion of the sac to the edge of the periosteum covering the nasal bones with fine catgut. This is done to prevent sagging of the soft tissues for cosmetic reasons. He did not do it in his earlier cases.

If free bleeding has been encountered from the ethmoidal region a narrow strip of petrolatum gauze is placed in the ethmoidal region of the nose and removed in twenty-four hours. Otherwise no packing is used.

The wound is carefully sutured—Michel clips are not employed, they tend to develop excessive scar. The eye is cleansed and anointed with vaseline, a well fitting dressing applied and a bandage.

The patient is dressed the following day. If there is much oedema, the lower angle of the incision is opened, the eye cleansed and anointed and the dressing reapplied daily for three or four days. If there is little oedema, the bandage is left off in 45 hours. If the incision suppurates, the lower part is opened, the bandage left off, the eye cleaned frequently and hot applications applied. The wound will become clean in three or four days.

An analysis of some of the partial failures in Dr. Mosher's series shows that a probe or silver style may have to be used after operation to complete the cure.

A slit canaliculus has not interfered with a complete cure in some cases and in others apparently has prevented a cure of the epiphora. One cannot state in each individual case, what influence it may have.

Crusting in the middle meatus sometimes occurs. No doubt it is annoying to the patient but does not interfere with a cure and tends to disappear.

Blowing of nasal secretions into the eye, though feared, does not occur.

I have a small series to report, consisting of eleven (11) operations. One (1) was a total failure. Two (2) have occasional laking and tears sometimes flow out on the face in very windy or stormy weather. These are partial successes but decidedly better than before operation. Eight (8) are successful and the result is as much as can be desired.

The total failure was due to an atrophic adherent sac which gave me great difficulty. It was my first case, I think I could do better now.

One of the partial failures was due to an incomplete obstruction following operation because of excessive infection and exuberant granulations. She had a subacute discharging fistula on the cheek. I intend to reoperate upon her in the near future as there is a fibrous membrane partially occluding the bone opening.

The other partial failure was in a child about 7 or 8 years of age with an acutely suppurating sac and not enough room in the bone area for a large opening. I will leave her case alone as she is not handicapped by the occasional mild laking.

Another case, a child 13, was a partial failure, but corrected by a second operation, a submucous resection of the septum, removal of a fibrous membrane and enlarging the bone opening. She now has a good result.

One case lost his eye from infection following a mild injury, in the presence of a suppurating dacryocystitis. This would not have happened if his sac had been drained and his eye clean before receiving his injury. His Mosher-Toti operation was a success and as he had a bilateral dacryocystitis, he insisted on operation on both sacs. Both are now draining perfectly.

One case had, in addition to her chronic dacryocystitis, a chronic suppurating antrum and ethmoid on the same side. The sac, ethmoid and antrum were operated upon at one

time. She had a stormy convalescence, but even so a very successful result.

One operation was performed by Dr. Mosher before a clinic when he was in Denver in 1924, during our Congress of Ophthalmology and Oto-Laryngology.

Dr. Black in his discussion will, among other things he has to say, speak of the ophthalmic problems involved.

Note

May, 1926. Since the presentation of this paper, local anesthesia has been used in the operations I have performed with most satisfactory results. The surgical and functional results have been eminently satisfactory.

DISCUSSION

Melville Black, Denver: A long experience in the treatment of dacryocystitis has convinced me that I cannot cure these cases, consequently I belong to that contingent spoken of by Dr. Cooper who likes to send his dacryocystitis cases to his competitor. It is better to send them to Cooper, I find, than my competitors because they are just about as unsuccessful in curing these cases as myself. Cooper has cured a lot of them, and they are remaining cured. It is very evident, I think, if one stops for a moment to consult his own experience and the literature as well, that it is a very difficult matter to cure a case of dacryocystitis which has passed into the purulent stage. Some of the cases of congestion of mucosa of the bony duct can be relieved by probing or by any number of different methods. But where the process has passed on to a pyogenic membrane of the lachrymal sac, because the inferior drainage through the lachrymal canal is entirely blocked, it is utterly impossible to effect a permanent cure by other means than a shortcircling operation as proposed by Dr. Cooper. Extirpation of the sac from the standpoint of getting rid of the infection was a satisfactory procedure. Of course, we never had any more tears passing down the duct. If the patient was relieved of the infection, he was relieved of the danger, in other words, of the lachrymal disease, but he was not relieved of the epiphora. However, we had come to believe that the most satisfactory thing to do was to destroy the sac in these purulent cases. Dr. Cooper has operated on a number of cases in my private practice, as well as several from the clinic, and the results have been so satisfactory that I feel that in any case of purulent dacryocystitis I am not doing the patient justice to do more than make a diagnosis and then hand him to Dr. Cooper for treatment.

J. A. Patterson, Colorado Springs: If this operation will give us what other operations for the extirpation of the lachrymal sac have not given us, we should commend it. It appears to be the nearest thing to perfection that has been accomplished. In all others that I am conversant with there has been an epiphora remaining, which has been a bad factor. Lachrymal obstruction with its oftentimes concurrent dacryocystitis has been the bête noir of the oculist for years, as proven by the many methods attempted for its correction. The ophthalmologist has worked for years from

the canaliculus downward, and his work has shown his ignorance of the nasal factors. Now, the rhinologist is trying to help him out. It seems that most efforts have not considered the laws of capillary attraction as essential to the flow of tears. I have seen lachrymal passages made worse by being made too large. Obstructions under the inferior turbinates are ignored and the influence of the ethmoid cells communicating or infecting by dehiscence or loss of the walls of the lachrymal sac have not been considered. Some of the work has been meddlesome interference. Washing the sac through the normal openings by proper syringe treatment of the nasal end of the duct quickly prevents early infection and gives relief. Too great readiness to slit the canaliculi is reprehensible. I think there is a great deal of work to do in the investigating line to determine the influence of the ethmoid cells, on the production of dacrocystitis.

Dr. Cooper (closing): Mr. President, I would like to thank Dr. Black for his very cordial recognition and also for the courtesy of his compliments in sending me those cases. About the pathology, doctor, I have not seen anything in the literature that has taken up the question very much of the pathology. There have been two cases reported where failures occurred. I have no doubt at all that the lachrymal sac is infected from contiguous structures.

PSYCHOPATHOLOGY— THINKING DISTURBANCES

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The character or content of thought must of necessity be evaluated by standards which have been approved by society as a whole. Everywhere about us, in newspapers, books, on bill boards, etc., there are examples of the character of thought on the events of life. Mistakes of thinking are usually discovered in due course of time and are subsequently accepted as such. A mistake, so recognized, is not a delusion. A delusion is a belief which is known to be false to all save the believer. There are many beliefs in this age of science and invention that require the most openminded investigation to determine if they are delusions or not. It may not always be possible to determine this. We are reminded that more than one inventor (Bell, Fulton, and others) was thought to be delusional in projecting his invention. Some delusions, however, are very obvious. A man 46 years of age, who had been always religious, came to the conclusion that in order to be saved and do the right thing by the Lord he must give up his three children in sacrifice by fire. Accordingly he was attempting to burn them alive

when intercepted by the civil and humane impulses of his neighbors.

Delusions which may be modified by reason or advice are not as pathological as those which cannot be so changed. Many delusions are present in people a lifetime but somehow never form the motives for action. Such delusions are less pathological than those which are the basis of action. A man might have the delusion of having more wealth than he really had and get pleasurable feelings from his belief. He might even be a valuable citizen in the community so long as he did not write checks on his imaginary assets.

The belief that a person was endowed with supernatural power, or with enormous wealth, or of unusual skill is likely sooner or later to come into conflict with reality, often all too late and after all financial resources of the patient and his friends have been depleted. Such delusions would be spoken of as **expansive or grandiose delusions**.

Some people spend much time thinking about the organs of the body. For example, a man thought that the food he ate was not passing through his stomach, but was continually "getting clogged up in his system and was poisoning him." Another thought that his body was swelling and getting smaller in rhythmic cycles. A belief that the mouth is so filthy that it must be washed with soap and water is not uncommon. A belief that the rectum or stomach are closed, or that the intestines are decaying is often present. Such delusions cause the patient to resort to devices for relief which are sometimes rather bizarre, and often seriously detrimental to the organs treated. Such delusions are known as **somatic (or bodily) delusions**.

There are many other types such as erotic delusions in which plans are made for ideal marriage or cohabitation in the future, but without basis in fact. There are delusions also of perpetual doubt but these are seen rarely. The essential factor to be kept in mind in making a survey of delusions is their malignant character. Are they of such a character as regards tenacity or motives for action as to endanger the patient's life or the lives of his associates?

EXPERIMENTAL STUDIES OF THE ALLEGED SYNERGISM OF MAGNESIUM SULPHATE AND MORPHINE

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In an attempt to perfect a safe method of anesthesia by the intravenous route, advantages were taken of the supposedly synergistic action of morphine and magnesium sulphate. The margin of safety between the amount of drug used intravenously to produce surgical anesthesia, and that of the lethal dose, was very small, and objectionable symptoms arose when approaching the lethal dose. Morphine was given which overcame these objectionable symptoms. The dose was rather large and not within the range usually recommended. Magnesium sulphate was used in combination, hoping to lessen the dose of morphine. However, this did not seem to prolong or intensify the action of morphine, unless large doses of magnesium sulphate were given, and when so done, presented a chain of symptoms which was attributable to it, this phenomena was not observed when morphine was given alone.

Animals given large doses of a 50 per cent solution of magnesium sulphate produces relaxation, followed by a variable degree of anesthesia and deep sleep, gradually resulting in death. If a smaller dose be given to the point of anesthesia and morphine be given every four hours the dog may sleep through a twenty-four-hour period. The question might be asked if morphine sulphate does not prolong the relaxing effect of magnesium sulphate instead of magnesium sulphate increasing the efficiency of morphine. Drugs used and details are withheld at this time, in that further work will be done and later reported.

Failing to observe any definite synergistic effect other than relaxation between these two drugs a series of experiments was carried out along a different line.

1. All dogs were approximately one year of age.
2. They were not subjected to the second test.
3. Drugs given subcutaneously.
4. Weight of dog and dosage verified.

5. Anesthesia meant surgically so in that the abdominal cavity could be explored.
6. Ether-oil combination was given slowly with a small catheter by rectum.
7. No food was given animals after 5 p. m. the preceding day.

11:00 A. M.—.00324 gm. morphine sulphate per kilo. body weight hypodermically. Nothing unusual observed after the administration.

12:05 P. M.—4 c. c. (75 per cent ether and 25 per cent olive oil) per kilo. body weight given by rectum. Anesthesia and results not satisfactory. Peristalsis remained too active, interfering with the retention of ether-oil combination. .00324 gm. morphine sulphate is not sufficient dose to inhibit peristalsis for colonic anesthesia.

The next experiment was carried out with magnesium sulphate alone in order to determine its relaxing power as compared with morphine.

11:00 A. M.—2 c. c. magnesium sulphate given hypodermically.

12:05 P. M.—4 c. c. (75 per cent ether and 25 per cent olive oil) per kilo. body weight given by rectum. Dog howled continually which was not observed in experiment above. Restraint necessary. Dog did not resist ordinary pinching, but artery forcep applied to the inner surface of the thigh caused pain. In the next experiment the dose was increased to overcome the excitement from ether-oil combination.

11:00 A. M.—2 c. c. magnesium sulphate given hypodermically.

11:20 A. M.—Dose repeated.

12:05 P. M.—4 c. c. (75 per cent and 25 per cent olive oil) per kilo. body weight introduced into rectum.

Dog immediately howled and restraint was necessary. Pinching with artery forceps did not cause pain.

Conclusion: .00324 morphine was not sufficient dose to overcome peristalsis, neither was magnesium sulphate when given alone. The next experiment represents combination of both drugs.

11:00 A. M.—2 c. c. magnesium sulphate sol. with .00324 gm. morphine sulphate per kilo. body weight hypodermically. Nothing unusual observed.

12:05 P. M.—(75 per cent ether and 25 per cent olive oil per kilo. body weight given by rectum. Dog immediately howled and restraint was necessary. Peristalsis was not inhibited. Anesthesia was incomplete. The addition of morphine to the magnesium sulphate did not prevent the howling and excitement stage. No ill effects.

The next dog was given twice the original dose of morphine, magnesium sulphate being omitted.

11:00 A. M.—.00648 gm. morphine sulphate per kilo. body weight.

12:05 P. M.—Lagging of hind legs characteristic of large doses of morphine. 4 c. c. (75 per cent ether and 25 per cent olive oil) per kilo. body weight by rectum. Surgical anesthesia complete within twenty minutes.

1:10 P. M.—Dog arousing. Cleansing enema. Returned to kennel. .00648 gm. morphine sulphate per kilo. body weight is the smallest dose which will entirely diminish reflexes and inhibit peristalsis, and makes possible a smooth anesthesia by the colonic method. The following experiment represents .00648 gm. morphine sulphate per kilo. body weight with 2 c. c. magnesium sulphate.

11:00 A. M.—.00648 gm. morphine sulphate per kilo. body weight and 2

c. c. magnesium sulphate solution. Nothing unusual observed when compared with the experiment above.

12:05 P. M.—4 c. c. (75 per cent ether and 25 per cent olive oil) per kilo. body weight given by rectum.

12:20 P. M.—Anesthesia complete.

1:15 P. M.—Dog arousing. Cleansing enema. Returned to kennel. The addition of magnesium sulphate did not shorten the induction time for surgical anesthesia, neither did it prolong its duration.

11:00 A. M.—.00648 gm. morphine sulphate per kilo. body weight and 2 c. c. magnesium sulphate solution.

12:05 P. M.—4 c. c. (50 per cent ether and 50 per cent olive oil) per kilo. body weight given by rectum. Anesthesia not complete. Reduction of the amount of anesthetic not possible. Some objection might be made to its slow absorption because of the excessive amount of oil. In the next experiment there was a reduction in the quantity.

11:00 A. M.—.00648 gm. of morphine sulphate per kilo. body weight and 2 c. c. magnesium sulphate.

12:05 P. M.—2 c. c. of the (75 per cent ether and 25 per cent olive oil) per kilo. body weight by rectum. Anesthesia not complete.

Summary of Experiments:

If .00648 gm. morphine sulphate per kilo. body weight be accepted as the smallest dose possible to induce and maintain a surgical degree of anesthesia for one hour after 4 c. c. (75 per cent ether and 25 per cent olive oil) per kilo. body weight is given by rectum, conclusions should be drawn that 2 to 4 c. c. of a 50 per cent magnesium sulphate solution given in combination with the morphine would increase its efficiency to such a degree that smaller doses of morphine might be used. This cannot be done because further reduction in quantity of morphine

causes dog to howl and restraint is necessary, and introduction of ether-oil combination is hardly possible.

If .00648 gm. morphine per kilo. body weight is sufficient dose as a preliminary measure to make possible an easy induction of surgical anesthesia, then the addition of 2 to 4 c. c. 50 per cent magnesium sulphate solution given before, together or soon thereafter, should increase efficiency of morphine to such a degree that smaller quantities of ether-oil combination might be used. This statement is made by Gwathmey: "That it requires less ether when one is subjected to morphine and magnesium sulphate preliminary to administration of ether." Accepting this as a fact, one would be surprised to note that reduction of the amount of anesthetic (50 per cent ether and 50 per cent olive oil 4 c. c. per kilo. body weight does not produce surgical anesthesia. Objection might be made to the amount of oil in interfering with absorption of the ether. In the last experiment 2 c. c. (75 per cent ether and 25 per cent olive oil) per kilo. body weight was given. This when preceded by morphine and magnesium sulphate solution proved conclusively that further reduction of 4 c. c. (75 per cent ether and 25 per cent olive oil) per kilo. body weight would not induce surgical degree of anesthesia.

Since publication of observations by Meltzer and Auer¹ in 1905 with magnesium sulphate, various articles have appeared.

Gwathmey² in 1921 with co-workers took advantage of the relaxing effect of magnesium sulphate and combined it with morphine sulphate in further perfection of his method of colonic anesthesia.

Upon this subject many writers have discussed the peculiar synergistic effects attributed to their combination. Bürgi³ in 1910 attempting to offer explanation of this phenenoma stated "That two narcotics introduced into the organism simultaneously, or soon thereafter, that there exists a stronger effect than one would expect from a simple addition of the two sepearte effects." This hypothesis was accepted by text-books on surgery. Later investigators forced Bürgi to modify his statement with another explanation which has since been

changed two or three times. Issekutz⁴ in working with magnesium sulphate and morphine to overcome convulsions of tetanus concluded from his experiments that synergism does not exist. H. Beckman⁵ experimentally has taken exceptions to this synergistic effect and his experiments support his statements. Results of my series of experiments as tabulated in this paper, support and give further evidence of his observations and contentions on this subject.

Favorable results are reported from the use of morphine and magnesium sulphate in relief of post-operative cases by Gwathmey⁶ and F. Smythe⁷ and cannot be dismissed without serious consideration. Each observer in this instance being very astute. Many other papers on this subject quote similar results, but the doses of morphine used was far in excess than one would give under other circumstances and deductions should be made in its analysis. Wesson and Howard⁸ report on 1000 cases the administration of 2-10 c. c. magnesium sulphate solution in controlling excitement and nervousness in the insane. They state, "That if large doses do not control this condition, that addition of a small dose of morphine sulphate does not increase its power." Other articles deal with its pain relieving qualities in obstetrical work. Such observation is of little value clinically. Morphine addicts who use regularly a daily amount of morphine and if given magnesium sulphate with morphine are not influenced in any way. Their daily consummation remains the same whether they are advised or not advised the object of its therapy. Objections to conclusions are in order when dealing with addicts, because of questionable correctness in their answers.

With diffidence do I offer a summary of inferences drawn from clinical observation. Criticism of the alleged synergism is made without arrogance. While many admit the abstract probability that a hypothesis has a nucleus of reality, few hear this probability, when passing judgment on the opinion of others, barring only the natural and unavoidable exaggeration to which all of us are prone when detailing conclusions which have

SYSTOLE

"By doubting we come to question and by seeking we may come upon the truth."—Abelard.

Man is his own star, and the soul that can
Render an honest and a perfect man
Command all light, all influence, all fate
Nothing to him falls early or too late.

—Beaumont and Fletcher.

No man can learn what he has not preparation for learning, however near to his eyes is the object.—Emerson.

God offers to every mind its choice between truth and repose. Take which you please you can never have both.—Emerson.

And as for me, though I have knowledge slight
In bookes for to red I me delight,
And to them give I faith and full credence,
And in my heart have them in reverence.
—Chaucer.

Yes, truly for, look you, the sins of the fathers are to be laid upon the children; therefore, I promise ye, I fear you. I was always plain with you, and so now I speak my agitation of the matter; therefore be of good cheer, for truly I think you are damned.—Shakespeare.

If some magical transformation could be produced in men's ways of looking at themselves and their fellows, no inconsiderable part of the evils which now afflict society would vanish away or remedy themselves automatically.—James Harvey Robinson.

"An old writer says that there are four sorts of readers: 'Sponges which attract all without distinguishing; Hower glasses which receive and powre out as fast; Bagges which only retain the dregges of the spices and let the wine escape, and Sives which retain the best only.' A man wastes a great many years before he reaches the sive stage."—Books and Men.

DIASTOLE

A Night Light

During the recent eclipse a Scotchman was seen running through the streets of Jacksonville in the hopes of sending a night letter.

Some Pronunciation

They pronounced Mr. B's condition as due to a caastro-intestinal disorder and said in a formal bulletin that "the same treatment will be continued and the patient will be kept absolutely quiet."—Denver News.

Evidence

Police who found a suspect hiding in a hencoop insist that it is prima facie evidence he is a bad egg.—Exchange.

"They are well matched, don't you think?" said one wedding guest to another.

"Well, rather," exclaimed the second guest. "She's a grass widow, and he's a vegetarian."—Exchange.

Answered

The following is an answer by a mother to a form inquiry regarding her child's health and health habits; "Does he snore?"

Answer: "We don't sit up and watch our kids snore, so if you want to find out, come over and watch for yourself."

"Do his eyes get red when he reads?"

Answer: "No, he never has red eyes, his eyes are gray."

Weather Permitting

In reply to an exclusion notice in one of the public schools because of pediculosis, a parent addresses the teacher as follows: "I received your insulting notice. I know O—'s head is dirty, but when they say she has head lice, that's too much for me; when the weather permits, I wash it, not before."

Patient: "I have a terrible rumbling in my stomach, like a wagon going over a bridge."

Doctor: "Very likely that truck you ate for dinner last night."

NEWS NOTES

The Pueblo County Medical Society met Tuesday night at the Congress Hotel. Dr. William Senger read a paper on "Surgical Aspects of Peptic Culture."

Dr. and Mrs. Edwin G. Faber are the parents of a son born April 28th.

Dr. Ziegler is leaving the Colorado Psychopathic Hospital to go to the Mayo Clinic where he will occupy the position of Psychiatrist in the Department of Neurology.

Dr. Mills has accepted a position as professor of Pathology in the Mayo Foundation which is a part of the Graduate School of the University of Minnesota. He will be associated with Dr. Robertson who is well known by many Colorado doctors.

DR. WELLS VISITS DENVER

Prof. H. Gideon Wells was an honored visitor in Denver recently on his return from the meetings of the Utah State Medical Society where he delivered a series of lectures on cancer. The purpose of the visit was to investigate the methods of teaching in psychiatry employed by Dr. Ebaugh in the State Psychopathic Hospital and designed for the instruction of the students in the University of Colorado School of Medicine. He expressed himself as well pleased with this phase of the work.

During the noon hour a group of thirty-four attended a luncheon given in his honor by Dr. Harry J. Corper at the National Jewish Hospital. Dr. Robert Levy, president of the board, was the toastmaster, and Dr. Henry Sewall, an old friend, introduced the speaker. In a very interesting way Dr. Wells told of the plans for the development of the University of Chicago in its new medical work, and outlined the aims which it is seeking to follow. There is to be both graduate and post graduate work in the medical sciences on an equal footing with other collegiate subjects leading to the degree of Ph.D. with or without the medical degree as the student sees fit. The purpose of this experiment, in which the General Education Board of the Rockefeller Foundation is interested, is to afford unusual opportunities for the student inclined toward research to develop himself in the most efficient way. Gathered about him were several old students including Drs. Corper, Mills, Elliott, Craig (Sullivan) and Gauss. The company included members of the staff of the National Jewish Hospital, some of the staff of the University of Colorado School of Medicine and prominent physicians of the city.

During the afternoon he and Mrs. Wells spent the afternoon in the mountains and visited Dr. and Mrs. Robertson at their home in the Mount Vernon Country Club District.

In the evening Dr. Wells addressed the faculty and students of the Medical School on the subject of Heredity and Cancer. The conclusions were based largely upon the joint work with Dr. Maud Slye of the Sprague Institute using genetic studies on mice. In something more than 50,000 mice they have seen practically every variety of tumor found in man. The manner of growth and appearances leave no doubt as to the fact that malignancy in the mouse and man are identical. Conclusions drawn from the study of one are applicable to the other with the one chief exception of those which are transplanted. In this in-

stance the transplant is growing upon a soil perhaps unfitted for its development, hence may react differently from one which grows spontaneously. The life of a mouse is not more than five years at most and this series of studies corresponds to 1,500 years of human existence. Every mouse is autopsied and its full diagnosis determined, as contrasted with the human species in which only 2 per cent of the population of the United States are examined post mortem.

The incidence of cancer follows the Mendelian laws, and can be predicted with great accuracy by a study of the ancestry of a given individual. Cancer can be bred into a stock or bred out at will. The tendency to cancer is a recessive, otherwise the human strain would automatically die out after a period of time. (In mice it is also recessive, otherwise the human strain would automatically die out after a period of time.) In mice, it is also recessive and genetic studies substantiate the claim, as shown in the numerous lantern slides shown during the lecture.

The lecture was enthusiastically received and most favorable comments were heard on every hand. The very pertinent suggestion has been made that some fund should be provided by which to bring to Denver other such inspiring and instructive lecturers, making this an annual event, the lectures being thrown open to the public and the profession of the state urged to attend.

MORRIS PRINTZ

1894-1926

The medical profession in Denver and in the state were shocked to learn of the untimely demise of Dr. Morris Printz while attending the convention of the American Medical Association at Dallas, Texas. He succumbed to the rare malady of acute lymphatic leukemia associated with a septic sore throat.

Dr. Morris Printz was born in Denver in 1894 and graduated from the University of Colorado in 1918. He served in the U. S. Navy during the war and at its close was associated for several years with the Veterans' Bureau. In the past few years he had been specializing in diseases of the digestive tract and was forging rapidly to the front in his chosen field of work, when the Grim Reaper cut him off on the threshold of a useful career.

Dr. Printz was of a kind and genial disposition, greatly liked by his patients and colleagues. He took an active interest in medical meetings, both county and national, and likewise in communal work.

The tragedy of his death is all the more deplorable as he leaves a bride of less than a year to mourn his departure, besides parents whose life-long ambition was an honorable professional career for their son. Requiescat in peace.

THE MONTANA PROGRAM

Our neighbors on the north are arranging for their state meeting which will be held in Billings.

The Montana Health Association will meet July 14 and 15. The Eye, Ear, Nose and Throat Society meets the 15th and the Medical Association of Montana meets July 16 and 17.

The tentative program includes papers by:

Dr. Morris Fishbein, Editor A. M. A. Journal, Chicago, Ill.

Drs. W. J. Mayo, Balfour and Des Jardins of Rochester, Minn.

Dr. L. Webster Fox of Philadelphia, Pa.
 Dr. R. C. Coffey of Portland, Ore.
 Dr. Henry Schmitz of Mercy Hospital, Chicago,
 Ill.

Dr. Fred Adair, Prof. of Obs., Minn.
 Dr. F. C. Rodda, Prof. of Pediatrics, Minn.
 Dr. A. D. Dunn of Nebraska.
 Dr. Frederick M. Allen of diabetic diet fame,
 New York City, N. Y.

Outside the state and our members:

Drs. T. C. Witherspoon, C. B. Rodes, A. W. Morse, J. R. E. Sievers, from Butte, Mont.
 Dr. M. D. Winter of Miles City, Mont.
 Dr. C. C. Albright of Great Falls, Mont.
 Dr. F. X. Newman of Helena, Mont.
 Dr. C. E. K. Vidal of Galen, Mont.
 Dr. F. S. Modern of Wibaux, Mont.

If you think these fellows are not going to have a good time, you have made a bad guess. Some of them are so woolly they even bring sheep ticks on their backs, but that doesn't affect the gray matter in their heads nor the gladness in their hearts.

Here's to Montana. Drink it down! E. W.

MEDICAL SOCIETIES

COLORADO OPHTHALMOLOGICAL SOCIETY

The regular meeting of the Colorado Ophthalmological Society was held Saturday, March 20, 1926, in the assembly hall of the Medical Society of the City and County of Denver, Dr. D. G. Monaghan presiding.

Dr. Clarence E. Sidwell, Longmont, showed Mr. M. L. D., who sought relief of pain in his left eye. He had had trachoma bilateral for five years. There were old scars in the tarsal regions of both upper lids and a few follicles in the upper fornices. The lower lids had the characteristic velvety appearance, were thickened and the fornices shallow. There was pannus of the left eye and a corneal ulcer of the limbal margin at three o'clock. Discussed by Melville Black, G. L. Strader, W. C. Finnoff, John McCaw, C. A. Ringle, F. R. Spencer, and C. H. Evans.

Dr. C. E. Sidwell also exhibited Mr. E. P. L., a case of marked corneal destruction of the left eye following a burn with muriatic acid and zinc chloride.

Dr. W. C. Finnoff demonstrated a case of monocular trachoma in a man of 24, which had all of the characteristic features of a subacute trachoma. He theorized that perhaps a tissue reaction prevents the development of trachoma in the other eye. Discussed by Melville Black.

Dr. James M. Shields showed Mr. T. O., age 25, machinist, from whose left globe a piece of steel was removed by magnet extraction after x-ray localization. The point of entry was at three o'clock just inside the temporal limbus. A conjunctival flap was made at the temporal side of the globe just above the level of the external rectus muscle. After a scleral puncture, the tip of a hand magnet was introduced and the piece of steel removed without difficulty. Discussed by Melville Black, W. A. Sedwick and W. C. Finnoff.

Dr. J. M. Shields showed also a case of central chorio-retinitis in the left eye of R. R., male, age 11 years. Poor vision in this eye was noticed on February 4, 1926, in shooting an air gun. Complete physical examination revealed nothing suggesting pathology except diseased tonsils which

were removed. Discussed by W. C. Finnoff and Melville Black.

Dr. Wm. M. Bane exhibited Mr. J. L., age 23, whose vision had always been poor, and especially so at night. He has two brothers whom he stated have the same trouble. At the periphery of both fundi was a deposit of pigment, suggestive of retinitis pigmentosa. The retinae had an atrophic appearance.

Dr. Wm. M. Bane also brought a girl, age 7, who had had poor vision all her life. The patient had very large areas of degeneration of the choroid and retina at the temporal side of each disc and very near to it. The discs were atrophic and there was a marked lateral nystagmus.

Dr. C. E. Sidwell exhibited an instrument he has devised for eversion of the upper lids. It is double armed so that one end is used for the eversion of the right lid and the other end for the left lid. It allows perfect control of the lid in eversion with one hand.

DONALD H. O'ROURKE, Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY

The regular meeting of the Colorado Ophthalmological Society was held Saturday, February 20, 1926, in the assembly hall of the Medical Society of the City and County of Denver, Dr. C. E. Sidwell, presiding.

Dr. W. A. Sedwick showed Mrs. A. S., a case of sclerosing keratitis and episcleritis, 27 years of age, married, housewife. In August, 1925, the left eye became inflamed and painful. The eye showed periods of improvement and relapse for many weeks and was finally referred for a pterygium operation on January 12, 1926. Examination of the eye revealed considerable congestion and thickening of the conjunctiva and sclera, marked lacrimation and several rather prominent nodules extending from the limbus to the outer canthus and downward and outward into the lower cul-de-sac. A larger, very red nodule occupied the sclero-corneal junction at five o'clock and another of about the same size was situated on the sclera 4 mm. above the upper margin of the cornea. These nodules were painful and sensitive to the touch. There was an infiltration of the cornea from 3 to 5 o'clock. Discussed by Melville Black, C. E. Walker, W. C. Finnoff, W. H. Crisp, John McCaw and Edward Jackson.

Dr. James M. Shields exhibited Mr. H. G. T., age 70, who had consulted him because of blindness. Seven months ago the patient weighed 180 pounds, the present weight is 154 pounds. The macular regions of both eyes were occupied by choroidal condition which has brought about elevation of the retina. The detachments are both roughly triangular in shape with the apices toward the upper edge of the discs and the bases laterally placed. Both occupy the greater part of the posterior pole of the fundi. In both eyes the upper and lower temporal vessels seem to limit the detachment although the detachment does go a little beyond these limits in places. Both detached areas show about four diopters of elevation above the normal surrounding retinal areas. A tentative diagnosis of bilateral metastatic carcinoma of the choroid was made. Discussed by W. H. Crisp, Edward Jackson, W. C. Bane, W. C. Finnoff, Melville Black.

Dr. W. H. Crisp presented a man, aged 32, who had come that day on account of rapid failure of vision of the right eye. The vision of the left eye had been very poor for a long time, and there was a rather vague history of disturbance of both eyes dating back ten years or more. The right

eye had symptoms of iridocyclitis. The fundus could not be seen. The left lens had an anterior capsular opacity of striking appearance, more or less stellate, or spider web-shaped, with its center well above the center of the lens. Discussed by W. C. Finnoff, E. R. Neepor, W. H. Crisp and Edward Jackson.

Dr. Wm. M. Bane brought Miss C. B., age 66, who had developed a postoperative hernia extending from 12 to 3 o'clock along the line of incision for senile cataract extraction of right eye. The hernia was excised and the margins of the corneo-scleral wound co-apted by Kalt sutures. Discussed by W. H. Crisp, Melville Black and J. M. Shields.

Dr. Wm. M. Bane showed Mr. G. H. A., age 34, who on September the 10th, 1924, had suffered a penetrating injury of the globe. The foreign body traversed the globe and is lodged in the orbit. Vision at the time of injury was shadows. Vision is now 5-12 and the eye is quiet. Discussed by W. C. Finnoff.

Dr. Wm. C. Finnoff exhibited a girl, 4 years of age, with the following congenital malformations. There was displacement of the right eye temporalward so that the interpupillary distance measured 72 mm. A coloboma of the right upper lid which was in line with a furrow in the upper outer orbital margin suggested that these two defects might have been caused by pressure from the cord or amniotic bands in utero. Discussed by Melville Black.

DONALD H. O'ROURKE, Sec'y.

COLORADO GENERAL HOSPITAL

The past month has been one of general routine, such as is encountered by all hospitals between the outstanding days of the calendar, and during which time efforts are bent toward the recuperation of the normal procedure, and toward the development of the program of future activities.

With the multiplicity of activities carried on in such an institution as this is, there are constantly minor activities coming up of great importance to certain groups, and which demand their attention. And hardly a week passes but some noted individual or a delegation wishes to be shown through the various departments which go to make up the two hospitals and medical school. Favorable comment is constantly heard uttered by those who should know concerning the entire plant, its design, facilities and of its future.

On May 12th this institution will join with others of its kind in the celebration of National Hospital Day which is becoming to be a nationwide institution. On this day the public is invited to come and become better acquainted with the institutions dedicated to the care of its sick. With the publicity which it is receiving the day should be a success.

The Superintendent's Office has given out the following figures for the month of April. While below those of the preceding month, March, it must be remembered that during March the clinic increased hospital attendance greatly:

Patients in hospital April 1, 1926	108
Patients admitted during the month	138
(Newborn included above)	13
Patients discharged during April	150
Patients dying in the hospital	6
Patients in the hospital May 1	91
Average number of hospital patients daily	89.4
Number of counties represented	24
Autopsies	5

The Out-patients' Department for the month of April cared for 2,564 patients, and of this total 473 were new cases. The daily average of attendance was 98. This does not include those refused admittance by the Social Service for cause, and which constituted approximately 10 per cent of the new cases received.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

Activities around this institution have paralleled closely those of the Colorado General Hospital. Minor activities are constantly occurring and with the usual routine keep the calendar full for all the personnel.

We regret to report the resignations of Dr. Hugo Meua and Dr. Lloyd H. Ziegler. Their personality and ability has won them the respect of all with whom they came in contact. Dr. Ziegler will join the permanent staff of the Mayo Clinic.

For the month of April we have received the following figures from the Director's Office:

Patients in hospital April 1, 1926	57
Patients admitted during the month	47
Patients discharged during the month	47
Patients dying in the institution	2
Autopsies	1
Patients in the hospital May 1	55
Counties represented	11

The Out-patients' Department reports about the usual amount of activity. During the month there were 144 individuals attending the clinics for a total of 242 visits. Of the total number 87 were adults and 57 children. In addition to the above there were the activities of the Social Service with follow-up work, visits to new house patients, psychological tests, traveling clinic and class work.

E. R. MUGRAGE.

Nineteen Twenty-five Another Record Health Year

The health record of the industrial populations of the United States and Canada was better in 1925 than ever before. Their 1925 death rate, however, was so close to the former minimum, recorded in 1924, that it is necessary to carry the calculation to the second decimal place to show the slight improvement over the preceding year. The 1925 death rate in the industrial population was 8.46 per 1,000; it was 8.48 for the preceding year.—Metropolitan Bulletin.

Industrial Water

According to information gathered by the American Water Works Association, there are 250 water supplies widely distributed in the United States and Canada that are affected by industrial wastes. Twenty-five different kinds of wastes were included in this survey, but acid mine drainage is said to be responsible for affecting more than 100 of the 250 water supplies. Pennsylvania alone is said to have 138 water supplies affected by industrial wastes, 96 being from acid mine wastes.—Department of Commerce.

Remains of the oldest civilized race known, the Sumerians, were found in Mesopotamia a year ago. A contemporary inscription of a king who had been thought to be only mythical, and a masterpiece of art, consisting of a carved frieze of cattle being milked, were among the discoveries. The inscription is now the earliest dated historical document in the world, and is believed to have been made about 3500 years before Christ.—Science Service.

BOOK REVIEWS

Abdominal Operations. New (4th) Edition. By Sir Berkley Moynihan, K.C.M.G., C.B., Leeds, London, England. Fourth edition, entirely reset and enlarged. Two octavo volumes totaling 1217 pages, with 470 illustrations, ten in colors. Philadelphia and London: W. B. Saunders Company, 1926. Cloth, \$20.00 net.

This work was first set up, printed and copyrighted in August, 1905. Since this time it has been reprinted six times and revised three. Its many illustrations and the excellent bookmaking leave nothing to be desired.

The lines written by Sir Berkley, in his preface to the fourth edition, are so characteristic of the author and his work that they will well bear repeating. He says, "Surgery is not only a matter of operating skillfully, it must engage in its service qualities of mind and heart that raise it to the very highest pinnacle of human endeavor. A patient can offer you no higher tribute than to entrust you with his life and health, and, by implication, with the happiness of his family."

"Surgery today is being practiced by too many light-hearted and incompetent surgeons, who have neither sought in due service, to acquire mastery of their craft, nor have learned, from experience gained from long association in hospital work, when an operation should be done, when left undone, how made to fall lightly upon a patient already afflicted, it may be, by mental no less than physical distress."

One of the most valuable chapters yet printed on abdominal surgery appears in this work on Surgical Technique—it being written in the simple narrative form easily read and understood.

The subject of intestinal stasis and its surgical treatment is thoroughly discussed and Sir Berkley's conclusions are of value, since written by so renowned and conscientious a surgeon and one who has, through close contact, had the opportunity to observe the favorable end results of cases which have survived formidable colonic resection by no less a surgeon than Sir Arbuthnot Lane. Sir Berkley's conclusions and recommendations on this mooted subject are, therefore, significant.

The chapters on spleen and pancreas, their pathology and surgical treatment, are covered in accordance with the very latest histology and physiologic knowledge of these glands, and are well worth the price of the work.

Sincerity of purpose, clarity and thoroughness are the outstanding features; hence these volumes are to be commended to all who strive to do for the afflicted the best which can be done in abdominal surgery. C. E. TENNANT.

Practical Helps in the Study and Treatment of Head Injuries. By Adolph M. Hanson, M.D., Formerly Neurosurgeon to Evacuation Hospital No. 8, American Expeditionary Forces. With 91 illustrations. Boston: Richard G. Badger, Publisher; the Gorham Press. Price, \$3.00.

This little handbook, which is thoroughly practical, can be read with profit by any practicing physician or medical student. The increasing number of accidents, because of wider use of the automobile, and increased industrial activity throughout the country, no medical man knows when his services may be required, at least

temporarily, to render aid to someone receiving an injury to the head.

The first half of the book gives a brief and elementary review of the structures and parts of the head most frequently injured, together with the symptoms resulting. This practical summary would be a pleasing find, and helpful aid to undergraduate medical students who have untold difficulty in grasping the intricate relationships of the skull with its contents and are more bewildered when attempting to interpret the symptoms and syndromes resulting from injury or disease. The busy practitioner will find this section an eye opener and a helpful review. Injuries to the scalp are common, and the author details how to control hemorrhage and repair the defect.

Fractures of the skull, which is perhaps the best chapter in the book, classifies these injuries, enumerates the cardinal symptoms and details most practical suggestions of treatment. The remarks regarding lumbar puncture, how and when to do it, measuring the spinal fluid pressure and how much fluid to remove and when to perform a decompression are important points well put. Injuries to the brain with or without infection or the inclusion of foreign bodies are very critical states ably discussed. The towel bandage is a convenient head dressing following operation or injury.

The last chapter deals with the repair of cranial defects by means of a costo-chondral graft.

The book is well printed, has numerous diagrams and photographs, is very readable and not a word is wasted in putting forth the facts on a subject in which it is hard to obtain information. WILFORD W. BARBER.

Physical Diagnosis of Diseases of the Chest. By Joseph H. Pratt, A.M., M.D., and George E. Bushnell, Ph.D., M.D. Octavo of 522 pages with 166 illustrations. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$5.00 net.

The first half of the book treats of the lungs, with special emphasis on pulmonary tuberculosis, and the latter half deals with the heart. A large part of the work treats of what we can expect in the normal chest. A number of apparently abnormal findings are shown to be normal. Diagnosis of heart lesions by murmurs is especially decried. Physics is largely called upon. The subjects are logically presented and give the thinker a chance to follow another thinker in the interpretation of much observation that is new in the normal as well as in the abnormal chest. New authorities are fully and freely quoted. All in all, it is a book written in a readable and interesting style. It gives a summary of the subject matter, and no book today offers finer real meat, assimilable for the thinking man.

ARNOLD MINNIG.

A Textbook of Physiology. By William D. Zoethout, Ph.D., Professor of Physiology in the Chicago College of Dental Surgery (Loyola University) and in the Chicago Normal School of Physical Education. Second Edition. St. Louis. The C. V. Mosby Company. 1925. Price, \$4.50.

This book is intended by the author to fill the gap between the larger texts, such as are used in medical schools and those offering a briefer course for use in the secondary schools. It is intended for use by Dental, Pharmacy, and Normal School students.

The volume begins with a chapter on the general properties of protoplasm, following a brief description of the structure of the cell. The activities common to all the cells is there discussed (irritability, contractility, conductivity, co-ordination, reproduction, metabolism, excretion, etc.). Then follows a brief discussion of the chemical composition of protoplasm.

Following the introductory chapter are several of a general nature, describing ferment action, cellular exchange, structure of the various tissues of the body and inter-relationship of the organs. Then the physiology of the various organs and systems of the body are taken up in turn.

There is an absence of much that is technical and which would not properly belong to a book of this scope in the text covering these subjects. The student is referred to monographs for greater details. The author has used and makes frequent reference to larger texts, and to articles which have appeared in the abstract journal, "Physiological Reviews." Frequent reference is made to matters of personal hygiene, such for example, as exercise, proper diet, mouth breathing, colds, baths, obesity, etc.

The book is quite up to date, there being reference to insulin and its function; the recently isolated parathyroid hormone; the "modern theory" of urinary secretion; the physiological cause of the sensation of hunger; the controversy over the function of the adrenal medulla and its hormone, epinephrine, etc. The author states the gastrin theory of formation of gastric juice which is not accepted by all physiologists in the way it is given.

It would seem that the book is well adapted to the purpose for which it was designed, omitting technical details which more properly belong to the field of medicine. Many pathological conditions are mentioned (ophthalmia neonatorum, syphilis, etc.) which would seem to belong to text books on medicine and pathology.

R. W. WHITEHEAD.

Old and New Viewpoints in Psychology. By Knight Dunlap, Professor of Experimental Psychology in the Johns Hopkins University. One hundred sixty-six pages. Price, \$1.50. The C. V. Mosby Company, St. Louis. 1925.

This book includes five chapters and is really a collection of several lectures that the author delivered at Johns Hopkins University. The five chapters are divided as follows: (1) Mental Measurements, (2) Present Day Schools of Psychology, (3) Psychological Factors in Spiritualism, (4) The Psychology of the Comic, (5) The Reading of Character from External Signs.

The first chapter of the book is by far the most interesting and important, and is really an excellent summary of the field of mental measurements. The historical summary of mental measurements begins with a description of the original development of the Binet-Simon tests followed by the work of Ebbinghaus in Germany, and the later contributions of American observers Goddard, Huey, Kuhlman, Yerkes, Bridges, Hardwick, and Terman.

The author criticizes the statements so frequently encountered in our literature, that these tests measure only natural capacity and not acquisition. On the other hand he says that the Binet-Simon tests and the typical adult intelligence tests of today measure acquisition almost exclusively; and from the measure of what the individual has actually acquired, we then measure the capacity to acquire. The author makes it clear that mental tests should only be given by

well trained individuals and that the interpretation of the result requires much more than the mere knowledge of the mechanical method of scoring. Several years of practical experience and training with supervision are essential to develop a competent testor. The author admits that at the present time there is a general incompetence in administration and interpretation in mental measurements. There is need for research and application of mental measurements in the following directions: (1) General intelligence tests for adults, (2) Tests for special abilities, (3) Vocational tests, (4) Educational tests.

In the second chapter the author discusses the many schools of psychology giving particular emphasis to psycho-analysis with detailed discussion of repression and instinct.

The psychological factors in spiritualism are briefly reviewed in the third chapter. Dr. Dunlap begins with the important observation, "that the great wave of spiritualism is merely a result of less hesitancy, and of admission of interest and less fear of the results of confession of faith in spiritual things." He believes that many mediums are sincere.

The concluding two chapters are of interest, especially chapter 5, which sets forth the results of the activities of amateur psychologists and indicates the advisability of an additional campaign against fraudulent character analysis.

The author's style is good and the general appearance of the book is attractive. This book is to be recommended to all workers in this field.

FRANKLIN G. EBAUGH, M.D.,
Colorado Psychopathic Hospital.

Intestinal Tuberculosis, Its Importance, Diagnosis and Treatment. A study of the secondary ulcerative type. By Lawrason Brown, M.D., Chairman of the Medical Board of the Trudeau Sanatorium, Saranac Lake, New York, and Homer L. Sampson, Roentgenographer of the Trudeau Sanatorium, Saranac Lake, New York. Illustrated with 112 engravings. Lea & Febiger, Philadelphia and New York. Price, \$4.00.

"The series of which this volume is the first, represents the results of the researches of a part of the Staff of the Trudeau Sanatorium along one of its lines of thought." This fact at once establishes the monograph as an authoritative work.

The data herewith presented is largely founded upon extensive x-ray studies—further advancing the diagnostic theory of cecal hypermotility in tuberculosis. The earliest and most frequent lesion being found about the ilio-cecal region.

Referring to the mode of intestinal infection the burden of evidence goes to show that it occurs from the swallowed sputum, and "Furthermore the localization of the tuberculous lesion about the ilio-cecal valve, where the lymphoid tissue is most abundant, and where the rate of movement of the intestinal content is slowest; also favors the enterogenous origin." Hematogenous infection, while possible, must be very rare." Bovine tuberculosis is apparently more frequently the cause of primary intestinal tuberculosis.

Under "Surgical Treatment" a statement appears by these authorities which is well worth heeding.

"These statistics show how seriously handicapped is the surgeon who attempts operation, although, no doubt, in many cases the operation prolonged life and gave great relief even when cure was not effected.

The chapter on The Diagnosis of Intestinal Tuberculosis by X-ray Method is alone well worth the price of the volume. C. E. TENNANT.

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TUNING IN

Infant Mortality Declines in the U. S.

A definite decline in the infant mortality rate in all racial groups during the six-year period, 1916-1921, is reported by Dr. J. V. DePorte of Johns Hopkins University, as a result of his analysis of birth and death statistics for different racial stocks in the United States.

Dr. DePorte states that the decline has been both absolute and relative, reducing the degree of variation between the rates of the diverse groups. He found the differences in the rates of infant mortality of the several groups due primarily to differences in mortality from diseases of the digestive and respiratory systems, which are theoretically preventable. Less change, absolute or relative, was found in the rates of mortality of infants under one month.—Children's Bureau.

Tools Make Men

That the tools of stone, wood and bone which it requires force to use, were the first and most profound modifiers of man in many ways, is the opinion of Dr. Walter Hough of the U. S. National Museum here.

"The crude tools required attitudes, postures and repetitions not demanded from any animal in nature," Dr. Hough said. "They prepared man's hands and body for the use of other and more complicated tools and implements needing more skill. It is possible that the human spinal curves are due to work with tools. Man's spine has a double concave-convex curve, while the ape's is simply curved once."—Science Service.

Hold On

Professor Miller's experiments seem to show that the earth is drifting through the ether which is supposed to pervade all space and through which light and similar waves are supposed to be transmitted, and the amount of the drift is greater on a mountain top than at sea level, where it is very slight. It was on the assumption that such an ether drift did not exist that Einstein's first work was largely based. However, other experiments have verified the predictions of Einstein, and while further verification of Professor Miller's experiments may lead to a considerable revision of the first or "special" theory of relativity, proposed in 1905, many of the fundamental aspects of his later or general theory of 1915 will remain unchanged, says Dr. Silberstein.—Science Service.

Adopting Babies

The procedure of adopting a baby, generally regarded as a huge and uncertain gamble with the future, can be put on a scientific basis. How this is already being done in connection with Connecticut child welfare agencies is reported by Dr. Arnold Gesell, director of the Psychoclinic at Yale University, who has written a bulletin on the subject for the Children's Bureau of the Department of Labor, Washington.

Hasty and impulsive adoption of babies on the grounds of appealing ways or curly hair is all wrong, according to this report. The childless couple, or the lonely woman, who want to adopt a baby, can start out with more chance of success if they learn something about the baby's health and his mentality and personality.—Science Service.

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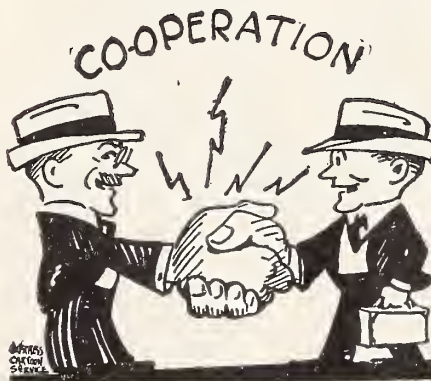
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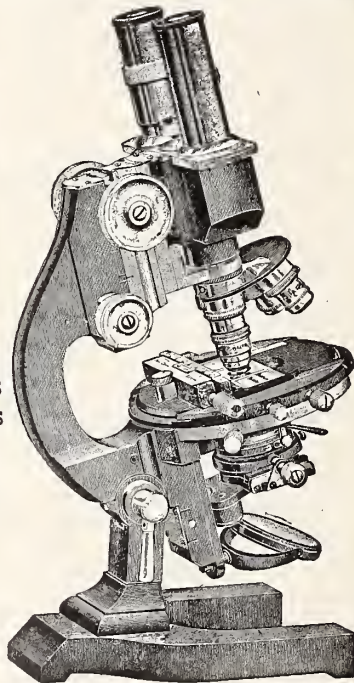
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TUNING IN

Making Immigrants Chiropractors

A newspaper announcement gives the information that the Ross School of Chiropractic of Fort Wayne has been designated officially by the United States Department of Labor as an immigrant school and that foreigners coming to the United States to study will be allowed to enter without regard to quota in instances where they are to be enrolled in that school. If that is true, what is to hinder the "wops" and all the scum of humanity from southeastern Europe from entering this country, regardless of immigration laws?

Anyway, isn't it an asinine proposition for the federal government to consider the Ross School of Chiropractic as an educational institution or to recognize its so-called graduates as qualified to attempt to treat the sick? Some day the public will wake up to the fact that it is tolerating a menace to the health and finances of a lot of credulous people by permitting such an institution, created and operated for commercial gain, to exist.—Journal Indiana State Medical Association.

The Wisdom of Denmark

In the midst of our wealth and commercial supremacy, we are very apt to regard the smaller countries of Europe as intellectually our inferiors. Yet, we well may take a lesson from Denmark in the matter of legislation for health and longevity. It is a surprising fact that the average longevity of man in Denmark is fifty-eight years—or about fifteen years above the average in the United States.

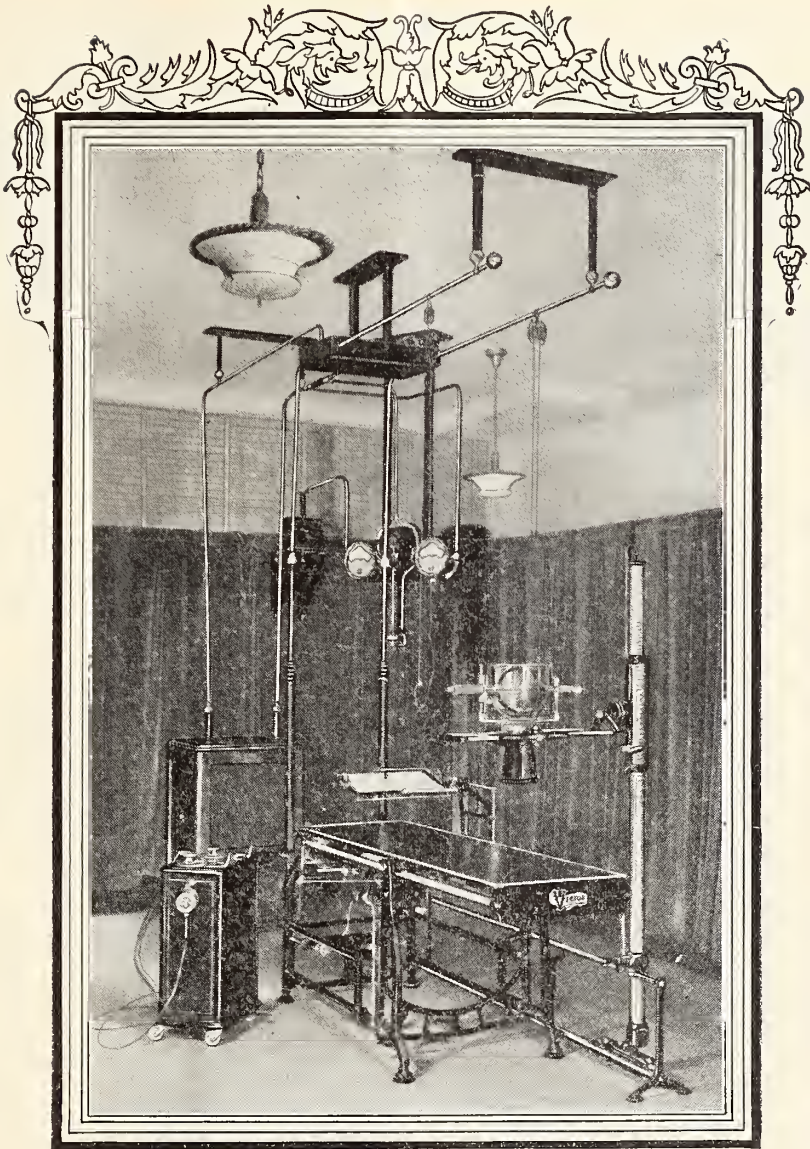
This is not a matter of climate, or good water, or natural health conditions, but the result of long continued and wise legislation, and the very important fact that Denmark's law-makers and people generally are more concerned about the public health and welfare than they are about the acquisition of dollars.

Denmark has eliminated typhoid and malaria, once potent factors in the mortuary statistics. Every public school has a gymnasium and a physical instructor. No patent medicines are allowed to be sold or advertised. Denmark's public health program, which has had such remarkable results, cost the taxpayers 18 per cent of the total revenue.—Journal of the Arkansas Medical Society.

Quinine Monopoly

The monopoly of the quinine market held by the Netherlands must be broken, say the health experts of the League of Nations. At present the most effective remedy against malaria is quinine made from the cinchona bark grown in the Dutch East Indies, which furnish nine-tenths of the world's supply. Cinchona bark from the other countries which supply the remaining tenth gives only 2 to 5 per cent quinine, while that from Java, the principal source, runs 5 to 7 per cent.

The production of quinine in the Netherlands possessions is in the hands of a syndicate which fixes the price on the Amsterdam market. A return of 36 per cent is paid on the capital invested. There is an independent Japanese company, but the competition that it affords is not for the present appreciable. Requests for the government to regulate the actions of the "quinine ring" have met with the reply that the quinine interests are merely safeguarding the legitimate rights of the industry.—Science Service.



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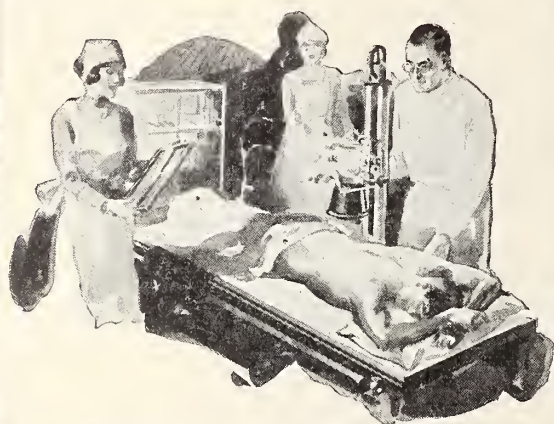
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TUNING IN

Not a Joke

Judge Neal made the following statement through Science Service:

"The appalling effect of the anti-evolution law in Tennessee is written in the anxious faces of every science teacher in the high schools, and the state university. At least to these individuals it has ceased to be a joke and become a terrifying reality.

"There is absolutely no possibility of the repeal of the anti-evolution law by the next legislature unless public opinion is enormously changed. The present governor, who approved the bill and who is a candidate for re-election, has announced as part of his platform that he will veto any effort to repeal the law. His only antagonist claims to be the real author of the bill.

"The press of the state as a whole have given no assistance whatever to those who have led the fight against the bill.

"The sole hope of any immediate relief lies in the possibility of securing in the Scopes case a decision of the Supreme Court of Tennessee to the effect that the act is unconstitutional."—Science Service.

Semitic Indians

Father Lejeune, a pioneer British Columbia missionary, has found words of Hebraic origin among the Indians, thus supporting the tradition that Chinese ships brought Hebrew traders to the Pacific coast 800 years ago.—Dearborn Independent.

Revenge

Mosquitoes, it is said, were introduced into the island of Morea in the South Seas by an aggrieved whaling captain who sought thus to get revenge on the natives.—Dearborn Independent.

Palestine Wins Health Victory

Palestine is awarded health honors of the year in the latest epidemiological report of the Health Committee of the League of Nations received by the League of Nations' Non-Partisan Association in New York.

The honor comes as the result of notable reductions in disease, particularly malaria fever. In the thirty-three leading dispensaries of the country where more than a quarter of a million patients are treated annually, the percentage of malaria decreased from 7.2 in 1922 to 3.9 at the time of last report. In Jerusalem there were only two deaths from malaria last year against 113 in the last nine months of the preceding year.—The League of Nations' Non-Partisan Association.

The Occurrence of Botulism in the United States

One hundred and fifty-seven outbreaks of botulism have been reported in the United States and Canada from 1899 to date, according to the Journal of the American Medical Association for February 13, 1926. The outbreaks gave a total of 504 cases with 337 deaths, or a case mortality of 67 per cent. Fifty-four of the outbreaks were proved toxicologically and bacteriologically. Vegetables were involved in thirty-eight outbreaks: meat, four; fish, four; fruits, one; pickles, one, and the remainder unknown. In thirty-six outbreaks the food was home canned and in eleven, commercially canned.—New York State Department of Health.

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TUNING IN

International Health Exhibition in Hungary

An international health exhibition, to be known under the title of "Man" will be held in Budapest, Hungary, from May to September of this year. The undertaking has the support of the Hungarian government as well as of the city of Budapest, and is to be conducted in conjunction with the German Hygienic Museum and the Hungarian Society for Medical Pedagogy.—Bulletin of the National Tuberculosis Association.

To Unearth Ancient Athens

The greatest archaeological venture of all history is about to begin. The ancient agora or civic center of Athens is to be unearthed.

Millions of dollars are to be spent, thousands of Athenians will leave their present homes for new residences, thousands of laborers are to be kept at work excavating for some fifty years, and two generations of archaeologists are to explore and study the seat of the greatest civilization of the classical world.—Science Service.

The Leslie Dana Medal

The Leslie Dana medal for the most outstanding achievement in the prevention of blindness and the saving of sight will be awarded this year to Miss Louisa Lee Schuyler of New York City, it is announced by the National Committee for the Prevention of Blindness.

The Leslie Dana award was given last year to Dr. Edward F. Jackson of Denver "for outstanding achievement in the organization of instruction in ophthalmological and medical colleges and for his contribution to the literature of ophthalmology".

Decline in the Tuberculosis Death Rate

The decline in the tuberculosis death rate, which has been consistently manifest during the last twenty-five years, still continues. A recent press release from the Bureau of Census shows that the tuberculosis death rate for the registration area in 1924 was 90.6 per 100,000. The rate for 1923 was 93.6. This means a saving of three lives in every 100,000 people.

For the year 1925 when the final figures are available the decline will probably prove to be even greater. From preliminary figures given us by insurance companies it is probable that between 1924 and 1925 the decline will be approximately 6 per cent. Since the figures for the registration area follow fairly closely the percentage of decline shown by the insurance statistics we may confidently expect the 1925 rate for the U. S. registration area to be between 85 and 86 per 100,000. The fear in some quarters that the decline in the tuberculosis death rate was being retarded seems so far unfounded.—Bulletin of the National Tuberculosis Association.

TONICS

Cheap whisky properly diluted and flavored with druglike substances has given people new life who had been suffering for years and who were supposed to be doomed to suffer for all the rest of their earthly existence. Only of course it was not labeled whisky, but tonic bitters or neurilla, or nervina herb tonic or mother's medicine or some other suggestive title.—James J. Walsh, in "Cures."

The Association of Medical Women in India was founded seventeen years ago.

Colorado Medicine

Published by the Colorado State Medical Society and the Wyoming State Medical Society

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NO. 7

EDITORIAL NOTES AND COMMENT

ALL ALONE

There is a region in the beautiful Big Horn Mountains in Wyoming where a natural lake was converted into a reservoir.

For centuries the waters of this beautiful stream had run through a wonderful cañon on its way to the ocean. The Crow Indians loved this clear mountain stream and today its splashing waters pass many of their great battle grounds where their warriors sleep up in the cliffs.

A few years ago the farmers changed this lake into an irrigation reservoir but their engineer failed to build the dam sufficiently strong or the spillway large enough. The dam gave way under the immense pressure and a great wall of water rushed down the Piney Cañon on its way to the Powder river.

Today this cañon is a barren waste, devoid of all vegetation. Nothing but immense boulders are left. It is a fisherman's paradise; but there comes over every man who ventures there a feeling of loneliness. No person can describe the feelings he has in these surroundings.

You are all alone. The wind moans in the trees up on the mountain sides, the water rushes and roars over the boulders, queer sounds echo in the cañon. You are all alone! It's awful! You can't stay there.

So there must come to every physician today who is not a member of his County, State and the American Medical Society this

same awful feeling of loneliness. He is all alone.

Get away from it. Join and enjoy the helpful companionship of the other medical men. If there is no county society, send in a request for membership in the State Society or help organize a county society at home.

Find out how lonesome you have been by coming to Lander, July 12 and 13, or to Colorado Springs, September 21, 22 and 23. Attend these meetings and get acquainted with the boys and enjoy our programs.

Don't be all alone! It's surely awful to be all alone!

E. W.

PROPHYLAXIS AND FREE MEDICINE

For months there have been rumblings of protest by prominent physicians in Denver against the abuse of charity in the administration of medical service. Social organizations have been accused of overzealousness for volume of service rendered or underzealousness in the care by which their recipients are chosen for medical aid. The protest became articulate and audible when it was learned that the Health Education Department of the Public Schools was administering toxin-antitoxin to the school population without cost. The objection was markedly softened when it became known that the School Board had been empowered to carry on this prophylactic measure by the City Commissioner of Health.

At a special meeting of the Denver County Medical Society two very independent and unconflicting propositions were discussed. The first was the necessity and importance of whole-hearted professional support of any effective prophylaxis, not only of diphtheria but of all preventable diseases. The contention that diphtheria is largely a disease of pre-school age is well taken but in no way excuses the profession in their support of a measure that will protect the children of school age. It constitutes a challenge for a more effective plan for diphtheria prophylaxis proposed and executed by the wise guidance of the organized profession. The very ideal of all health education is to teach the child and its parents how to become and remain healthy. Such information regarding diphtheria must inevitably spread beyond the school population to the benefit of the entire community.

The second proposition for discussion was the duty of physicians in regard to the ever-growing abuse of charity. This tendency among certain patients, self supporting in all other lines but mendicants when in need of medical aid, is greatly to be deplored, and one which, from informal reports from social service organizations, is being corrected in Denver by accepting for charity only those falling below a certain arbitrary standard of income.

It is not the frank charity patients but the borderline patients, those of modest or even meager incomes, that give cause for careful thought and frank discussion. Were medical aid divided into certain grades or qualities and these labeled similar to the commodities that people buy, then the borderline poor could purchase a cheaper grade of medical service—that comparable to their ability to pay. To this we believe physicians would or should never assent. So no alternative exists than to render a maximal type of service but for a fee paralleling the income of the patient, feathering out with those just above the standards of eligible charity. The unwillingness of some physicians to render a certain service for less than a certain fixed fee is probably a very important factor in this problem and one which is causing thousands of erstwhile prideful but poor citizens

to join the vast drab army of charity seekers. This in our judgment is one of the causes for the growing demand for state medicine that none can fail to hear and none can silence save by placing the best of medical service within the reach of every citizen. Fortunately in most cases this is being done.

LEARN AS YOU GO

It has been the frequent complaint of successive editors of this journal, as it is the complaint of medical editors elsewhere, that many an unusual and instructive medical or surgical case remains unpublished. As in other walks of life, so among the medical fraternity, the college is but the beginning of education, and much is learned, and much more should be learned, as we go through the school of daily experience. In this respect, if in no other, the profession of medicine should be a cooperative affair in which the training of each one is rounded out by the experience of his fellows.

With this thought, and following the excellent example set for some years past in a number of the larger clinical centers of this country, the Medical Society of the City and County of Denver, under the presidency of Dr. S. D. Van Meter, and through a special committee consisting of Drs. G. W. Miel, R. G. Packard, and W. H. Halley, is planning to render more readily available to local and visiting physicians many of the surgical and, although perhaps in lesser degree, of the medical cases which pass through the various hospitals of Denver. Arrangements have been made to place a bulletin board in the hall-way leading to the Society's library in the Metropolitan Building, and upon this bulletin board are to be posted from day to day schedules of the operations to be performed next day as well as notices of fixed and special clinics which may be open to visitors.

The publicity afforded by the bulletin board will, it is hoped, be supplemented and re-enforced by monthly notices in the pages of Colorado Medicine. The scheme will, of course, be subject to some limitations. A few surgeons will not welcome even medi-

cal spectators, perhaps feeling that they can do better work when attended only by those strictly engaged in the work of the operating room. Many patients will object to being exposed to the miscellaneous gaze even of medical practitioners. It is not unlikely that there will be at times some laxity on the part of surgeons or hospitals' officials as to furnishing the necessary information soon enough to render it available for the committee's purposes. But the idea should be given a fair trial, and its possibilities thoroughly worked out.

The staffs of a number of the Denver hospitals have already been approached, and officially or semi-officially have expressed their readiness to fall into line. It is understood that among these is the United States Hospital at Fitzsimons, where probably as much or more advanced work in tuberculosis is being done than in any similar institution in this country or even in the civilized world.

It is expected that the plan will be in operation by the middle of July, and that it will be thoroughly systematized by the first of September. It is also hoped that the very valuable instruction to be derived from post-mortems may be rendered available through the daily bulletins.

The scheme should be administered solely for the advancement of medical science and education, and in no way to further the selfish interests of the demonstrating surgeon or physician. Nor should the publicity afforded to the hospitals be made subject to any spirit of favoritism or exclusiveness. Two or three months ago the Medical Society of the City and County of Denver passed a resolution of criticism concerning certain details of preliminary organization in Denver's most recent and in many ways most modernly equipped hospital. There is some suggestion that the fact that the management of this hospital has not yet appointed an official staff will be taken as a reason for omission of the hospital from the daily bulletins. But some surgeons may be disposed to question whether the work which they do at one hospital should be regarded as worthy of public announcement, while

operations scheduled at another and equally well known hospital are forbidden such mention. No limitations of this kind should be imposed except by special resolution of the County Medical Society, and unless upon the basis of ethical criticism fully and openly confirmed after impartial investigation.

W. H. C.

FAITH HEARING

The use of religious ideas and practices may be most helpful, and this has come into vogue in various forms, as Christian Science, Emmanuelism, Mental Healing, etc. It is an old story. In all ages, and in all lands, the prayer of faith, to use the words of St. James, has healed the sick; and we must remember that amid the Aesculapian cult, the most elaborate and beautiful system of faith healing the world has seen, scientific medicine took its rise. As a profession, consciously or unconsciously, more often the latter, faith has been one of our most valuable assets, and Galen expressed a great truth when he said, "He cures most successfully in whom the people have the greatest confidence." It is in these cases of neurasthenia and psychasthenia, the weak brothers and the weak sisters, that the personal character of the physician comes into play, and once let him gain the confidence of the patient, he can work the same sort of miracle as Our Lady of Lourdes or Ste. Anne de Beaupré. Three elements are necessary: first, a strong personality in whom the individual has faith—Christ, Buddha, Aesculapius (in the days of Greece), one of the saints, or, what has served the turn of common humanity very well, a physician. Secondly, certain accessories—a shrine, a sanctuary, the services of a temple, or, for us a hospital or its equivalent, with a skillful nurse. Thirdly, suggestion, either of the "only believe," "feel it," "will it" attitude of mind, which is the essence of every cult and creed, or of the active belief in the assurance of the physician that the precious boon of health is within reach.

OSLER.

ULCER OF THE STOMACH

In connection with gastric disease it is hardly too much to say that we owe almost everything to the radiologist. As we look back upon the history of gastric ulcer in respect to its symptoms, its diagnosis, and its treatment, we must now realize that before the radiologist came to the rescue there was little that could meet with our confident acceptance. I do not doubt that more errors have been made in the diagnosis of gastric ulcer than of any other disorder. Its symptoms are mimicked with so much accuracy by other diseases that it is not only the unwary who are deceived. The radiologist has put all this right, or nearly right, and has, I think, explained the cause of the so remarkable plagiarism by those other diseases which arouse gastric symptoms. It is, however, not only diagnosis that has been at fault, but the treatment that has been based upon it. How can we explain the devotion of physicians to the alkali treatment of gastric ulcer except on the assumption that the diagnosis upon which such methods first were founded were erroneous? —Sir Berkeley Moynihan in Radiological Review.

SECRET FEAR*

C. S. BLUEMEL, M.A., M.D.

DENVER, COLORADO

Secret fear is one of the common liabilities of life. It is so common that it should probably be regarded as normal.

It is often secret fear that prompts the patient to come to the physician, yet in the end the fear may be overlooked. The subjective symptoms of palpitation, nausea, etc., often receive minute investigation, while the psychological background escapes attention.

The patient's whole difficulty may be fear, but usually he will fail to disclose the fact unless the matter is made easy by the physician's sympathetic and tactful inquiry.

As medical men we overlook fear, because it pertains to the mind, whereas, through tradition and training, we direct our attention to the body. We ascertain the state of the body by determining the pulse, temperature, blood pressure, etc.; but we have no corresponding tests that reveal the state of the mind.

We have no standards or norms, even of mood, and we do not know precisely the nature of the average mood of the average individual. Should a man normally feel calm and carefree, glad, cheerful, or exuberant, or may he at times feel anxious, depressed, and fearful, and still not deviate from the normal?

In answering this question we shall certainly err if we accept our own estimate of other people's moods; for their feelings are known only to themselves, and we shall be misled if we construe them in terms of our personal psychology. For this reason it will be well to consider for a few moments the moods and fears of other people.

A middle-aged man says that he is so ill at ease in the doctor's reception room that he keeps his eyes constantly on the floor and cannot raise them above people's knees.

A young girl is so fearful and self-conscious that she cries if the streetcar conductor speaks to her about her transfer.

A woman complains of fear and inward nervousness. She is not afraid of anything; she is merely afraid. She has premonition;

at night she awakens with a feeling that something terrible is going to happen.

Another woman, when driving her car, has a feeling that someone is following. She often wakes at night with a feeling that someone is approaching her.

Patients sometimes complain that they cannot stay alone with their thoughts. They think of troubles of the past and of imaginary terrors of the future.

A man says, for instance, that he thinks of accidents that might befall his children. He lies awake at night and thinks of them falling down a well.

A woman, whose son has gone away to school, says that she pictures him climbing mountains and standing on the edge of a precipice. In her mind she keeps calling him. She feels strange and unreal, as though she were living in the past.

Another common experience is the fear of crowds. A young man says that when he is in a crowd, his head closes up and his mind gets blank. He is anxious and ill at ease and he trembles. If he is with a person all day, he feels as if he were the other person.

A young woman feels faint and nauseated when she is in a crowd. Her eyes twitch and her heart palpitates. She says that she would rather die than go to a church or theatre. She has been to a theatre only once in three years, and then she sat in an aisle seat.

Many people experience fear in high buildings. A person with this phobia may climb mountains and be comfortable because he is on the ground, but when he finds himself in a building a few flights above the ground, he becomes nervous and anxious. A young man tells me that when he is in a high building, he has an impulse to jump out of the window. When traveling by train, he wants to throw himself off.

Another phobia is the fear of small rooms or cramped spaces. A teacher has nervous dread when passing through the vestibule into her classroom. When in the open space of the classroom she is quite comfortable,

*Read at the annual meeting of the Wyoming State Medical Society, June 22, 1925.

but the close walls of the corridor oppress her.

A woman is unable to ride in an elevator because it is too small. She often walks ten flights to escape this torture.

A woman who travels a good deal complains that she cannot sleep in a Pullman berth. After spending a short time in the berth, she feels that she is encoffined. She becomes so terrified and oppressed that she gets up and sits all night in the dressing room.

Another common difficulty is the feeling that things do not seem right or look right. The patient often complains that he feels unnatural, unreal, or detached. Sounds may seem unnatural or far away. Thoughts repeat themselves.

A man of 60 says that he built a house twenty-five years ago, and he worried for several years about the roof. It never looked right to him, although he could not tell what was wrong. If he buys a new hat, it takes him several months to get accustomed to it.

A girl of 17 has nervous attacks, in which her head feels big, as though it were going to burst. The eyes in the pictures on the wall grow large and surround themselves with revolving rings. She becomes terrified and gets numb all over.

The degree or intensity of these different fears may vary from a state of anxiety, or a condition of being ill at ease, to one of profound terror, with the accompanying physiological changes. When the fears are pronounced, there is tremor, palpitation, vertigo, shortness of breath, nausea, perspiration, weakness, and prostration. A woman tells me that in an attack of fear, she had to crawl to the telephone to call the doctor. Such symptoms may occur, despite the fact that the fear is vague, and despite the patient's knowledge that the fear is unreasonable.

When fear is a conspicuous thing in a patient's life, it is rare to find only one fear. Usually the patient is afraid of a number of different things. I mentioned a woman who was afraid to sleep in a Pullman berth because she felt as though she were enclosed in a coffin. The same patient frequently dreams that she is being drowned in dirty

water. When her mother was sick, she was afraid that if her mother died she would be accused of murdering her.

A woman is greatly afraid of crowds, and when she has to entertain guests, she is terrified for days beforehand. But this is not her only fear. She is afraid of thunderstorms, and a storm brings all the physiological symptoms of terror. Unfortunately she is equally afraid of fires, and once when she was about to sail for Europe, she remembered a previous fire on shipboard. She immediately left the ship and abandoned her travels.

Fears, then, are found in groups, rather than singly, and they often vary from time to time, though some of the major fears, such as the fear of storms and crowds, may remain constant.

The fears that I have thus far discussed are in the main vague or ill defined. Despite his phobia or obsession, the patient cannot tell precisely what ills he anticipates. A storm terrifies him, but he is not afraid of the thunder or the lightning. A high building appals him, although he does not expect to be crushed to death.

The situation is different with hypochondriacal fears. The fear concerns the health, and the apprehension is usually directed to some particular organ or function of the body. We find numerous complaints of pain about the heart, pressure on the heart, and various forms of palpitation. The heart jumps around, turns a flop, or beats as fast as a baby's. Patients acquire the habit of taking the pulse, and one woman scratches herself with a pin to test the circulation. Patients are often afraid to sleep on the left side, and one hypochondriacal patient that I encountered was afraid to speak out loud, lest the effort should impair the heart's action.

Patients are quite often afraid of a lump in the throat. One woman has a lump that goes up and down; another has a lump that she is continually swallowing; a third has a lump in the throat as big as a canteloupe.

Pain in the head occasions much anxiety. Because of headache, one young woman lines her hats with flannel. She is convinced that she is developing a brain tumor.

We frequently hear complaints of failing memory. I have encountered this even in a little girl of 10. Equally common is the fear of insanity. A violin teacher heard of two other violin teachers who went insane. She feels that in the natural course of events she must be the third. A young housewife is convinced that she is going insane, and that she has the eyes of an insane person. Frequently during the day she examines herself in the mirror.

An understanding of the patient's fears will often afford an interpretation of his symptoms. A man complains that he feels dazed and empty-headed; it seems as though there is a vacuum in the upper part of the head. He is unable to concentrate. There is constant anxiety, and he believes that his mind is affected. He can get comfortable only by taking vigorous exercise. The explanation of his fear is that he has a brother who is insane. The brother writes him every day and tells him of his own fears and symptoms.

Another man has vertigo, headache, tremor, chilly spells, vague anxiety, physical weakness, and insomnia. He is unable to apply himself to his work, and is in constant fear of his health. He spends much of his time in California, and brings his symptoms back with him. He confesses that he is worried because a close friend has epilepsy, and he fears that he sees some of the symptoms of this disease in himself.

A man complains of headache and of pain in the region of the heart. His hands are cold and numb. He has lost his appetite and has insomnia. He is too weak to do his work, and he often gives it up for days at a time. He has had various medical examinations, but no one can find anything wrong with him. He finally confesses that a number of his intimate friends have recently died and he believes his days are numbered.

One does not need to resort to Freudian interpretations to understand fears of this kind. They are the simple fears of association.

This brings us back to our original proposition that secret fear may be normal. When it is due to simple association of ideas, it is certainly the product of normal mental proc-

esses. Then, too, fear is so common that it must be regarded as part of the thought content of the average mind. These two criteria should give most fears the ranking of normal experience. Fear ranks as abnormal only when it becomes disabling.

It is from obsessing and disabling fears primarily that patients seek relief. Many a man has joined the Christian Science Church because it offers assurance concerning the present life. The older religions promise everything hereafter; the newer cult pays something on account.

But to return to fear. Some very common fears are in the nature of atavisms or throwbacks to earlier periods in the development of the human race. Such, for instance, are fears of fur, storms, water, and of heights.

Occasionally a patient's fear can be traced to ill health, and especially to hyperthyroidism. At times it can be attributed to chronic infection, as from tuberculosis. It is rare, however, that we find a definite connection between phobia and systemic disease.

Fear can often be traced to undue solicitude on the part of parents. Too often a mother tells in a child's hearing of the doubts she had that she would raise him, or of the illnesses in which he was "stricken" or "afflicted." Fear and hypochondria are thus developed by suggestion.

A young girl of 4 had tuberculosis of the hip. At 6 she was entirely well, yet her family still indulged her and expressed fears concerning her health. When I saw her at 10 she was a juvenile hypochondriac. She complained of pain all over the body. She had vertigo, and a sense of pressure over the top of the head. She had failing memory and a sense of unreality. When she was at school, she felt as though she were at home; and when at home, she felt as though she were in school. She was so nervous that the whole family had to keep quiet.

A healthy boy of 7 was regarded by his parents as nervous, and they talked constantly about his health. The neighbors became interested and often came in to inquire how Joe felt. In consequence Joe felt sick. He complained that he was weak and tired. He could not stand anything. His head hurt him and he ached all over. He was bothered

by the swinging of a screen door in the next house. He was annoyed by the doorbell, and even by the striking of the clock. He rarely attended school, and when he went, he lay down on returning home, and told the family that he was too weak to talk.

Sometimes fears result from a discussion of sickness in the family circle. A boy heard his parents talking about a man who had died in the night of heart failure. He was so impressed that he was afraid to go to bed, and his mother had to sit up with him.

Adults react in the same way, and often develop symptoms suggested in advertisements for nostrums. Even cancer campaigns may have an ill effect. Among 187 patients examined at a cancer clinic, 158 did not have cancer. A large number undoubtedly had cancer phobia.

Avoidable anxiety is sometimes caused by thoughtlessness on the part of the physician or nurse. A doctor tells a patient that he has a heart murmur, and offers him no assurance, though the condition is of little consequence. The patient becomes a confirmed hypochondriac and is disabled by his fears.

A woman is told that her x-ray plate shows that she has a small heart. She worries and feels that in some way her heart is deficient.

An immature nurse on night duty made the rounds of her ward, taking the patients' pulse. One man's pulse seemed a little fast, and she woke him to ask if his heart felt all right. He says that it has never felt right since.

An anesthetist supposed his patient to be fully under the ether, and told an orderly to strap him. The man heard the instructions, and was "scared to death." He now wakes at night with a feeling that he is being strapped and chloroformed. One evening, when he was sitting on the porch, his mind seemed to go blank. He feared that he was going insane. He excused himself and went upstairs to look at himself in the mirror. He was shocked at his facial expression, and became convinced that he was losing his mind. He attributes this phobia to the careless remark of the anesthetist.

Many of these fears are evidently avoid-

able, for the physician has merely to consider the patient's viewpoint in order to safeguard him against false inferences and fears.

And now at the conclusion of my paper I find that I have a secret fear of my own, for after recounting innumerable fears I have no specific remedy for them. I fear that my paper may merely offer you idle entertainment, when it is intended to be purposeful.

The principal point I wish to make is that we should take cognizance of fear. This applies in the practice of education as well as the practice of medicine. I believe that there is a fundamental defect in education,—that education neglects the emotional life of the child, and addresses itself too persistently to his faculty of memory. The child's education is not properly balanced, and thus he develops emotional difficulties, from which he should rightly be safeguarded. Of late there is a tendency to remedy this defect through the establishment of child guidance clinics and mental hygiene movements, but this emphasizes the fact that the schools have thus far missed their opportunity.

Turning to the practice of medicine we find the same neglect of the emotions. Our inquiry into the patient's subjective experiences rarely goes beyond the matter of appetite and sleep. For the rest, we disregard the emotional life, and if the patient goes insane we call the sheriff or the psychiatrist.

In short, we treat fear by ignoring it. This is regrettable, for we can often reach a patient's problems with a little tactful inquiry, and solve them with kindly assurance. When the situation does not thus resolve itself, it is frequently because the physician's viewpoint is too objective for him to consider the matter of secret fear, while the patient's viewpoint is too subjective for him to mention it.

The world's demand for crude rubber will exceed the supply by 37,000 tons in 1930 unless some plan of relief is adopted. This future shortage, which is actual, is troubling Congress almost as much now as the artificial shortage brought on by English restriction of rubber exportation, which makes the price so high at present.—Science Service.

PRIVATE PRACTICE AND STATE MEDICINE*

HENRY SEWALL, M.D.

DENVER, COLORADO

It has long been known among animal breeders and especially among plant culturists that a strain that seemed fixed and true will, every now and then, produce offspring that resemble some more primitive and less desirable forms of life. This fact of reversion is known as "Atavism". The latin word "atavus" means "a great-grandfather's grandfather", and the scientific use of the word indicates a reversion to previous ancestral traits. The modern science of genetics—younger than many who are here—has put the facts of heredity and atavism on a morphological and mathematical basis.

He who is willing to expend some intellectual effort for a satisfaction that will pay far above par can find it in this study; and he will nowhere find it more clearly and concisely treated than in a little book in our library called "Evolution and Genetics" by a master-workman in this subject, Thomas Hunt Morgan.

Lest you^o think me too discursive, I will say at once that in my opinion the subject set for discussion tonight might be truly named "Medical Atavism".

†Dr. Oliver Wendell Holmes said: "The state of medicine is an index of the civilization of an age and country,—one of the best, perhaps, by which it can be judged."

There has been evolution in medicine as in every other factor of the universe. The father of medicine, Hippocrates, understood as fully and expressed as clearly the medical practitioner's proper relations to his patients as could the most exalted mind of today. But in the 2400 centuries since his time, new conditions have arisen, though principles have remained unchanged. The same laws of disease and immunity that we study today have been in action from the beginning. But now we no longer look upon disease as a scourge dispensed as punishment by retributive deities, but we recognize that all facts are under dominion of immutable laws. And

within the brief span of some sixty years the curious minds of men have definitely assumed the task of investigating these laws to discover them, to control them, to harness them to our own purposes and the welfare of mankind.

But when it became evident that there were truly such things as demons of disease, that we could catch them, grow them, control them, kill them, the thought inevitably arose that the most rational solution of the disease problem was not to confine our efforts to the application of more or less futile and ridiculous therapeutics but to discover the causes of disease and to obstruct their operation. Thus arose the modern science of Preventive Medicine. At the same time was born a new offspring to the house of Medical Ethics. For, mind you, this new doctrine demanded of the practising physician that he take, if necessary, the bread out of his own mouth by preventing the very diseases on the treatment of which his livelihood depends. This is surely the **ultima Thule** of altruism. Nobly has the medical profession risen to this ideal of service. It is an unwritten law of our cult that any member who would consciously omit, with malice aforethought, to take measures within his control against the dissemination of disease would thereby disbar himself from our circle. So strongly has the idea of disease prevention gripped the medical mind that within the past few years some aggressive leaders in our profession have been urging a sort of Chinese system of prophylaxis—namely, the routine examination at stated intervals of all healthy persons; this, not for the emolument of the doctor, but for the discovery of lines of weakness in his client the recognition of which might prolong his life, save his money and increase his happiness. I have observed no protest by medical men against this effort which must, if successful, greatly increase the onus of their labors—but at a price!

When we appear before the public for their instruction or to combat the quacks

*Read before the Denver County Medical Society, May 25, 1926.

†O. W. Holmes, *The Medical Profession in Massachusetts*, 1869.

the keynote of our arguments is found in the accomplishments of "Preventive Medicine".

Vaccination against smallpox; aseptic surgery; child-bed fever; the control of typhoid; malaria; yellow fever; diphtheria.

You will note that the appropriate measures for the prevention of all these scourges are applied in behalf of great numbers of **well** people; when successful, there are no sick patients.

It is self evident that no private physician or collection of physicians could rationally pretend to cope with the problems of prophylaxis on a large scale. The doctor is not trained for such work; if, by chance he knows, he has not the power to enforce obedience to his advice. We manifestly need in this field an impartial central authority, highly trained in the Science and Art of Preventive Medicine. Such is the ideal, often so feebly imitated in our municipal and state health departments, all of which are the more or less competent correspondents of our National Public Health Service.

Most of us here a few years ago witnessed in Denver an epidemic outbreak of smallpox of unprecedented severity.

The medical profession loyally offered its services to the public; but it was very obvious that hard work and good will could not stay the epidemic; the constituted local health authorities were unable to cope with the situation, but they had the wisdom to anticipate the design of the Medical Society and sent an S. O. S. to the Surgeon-General of the Public Health Service who put at our disposal a single executive, Dr. Parran, whose charming tact allayed the local irritation, and whose technical knowledge, common sense and firmness grappled with the problem, and the epidemic was soon under complete control. He was later succeeded by a colleague with similar attributes of efficiency, and one who chanced to be a product of our own, Dr. G. C. Lake.

But after the battle we realize that we have been saved by the interposition of "State Medicine" which is **andthema ma-randtha** to the organized enemies of scientific medicine. I will assume that this audi-

ence seeks only truth and human welfare and is not to be perverted by a slogan.

The specific subject for discussion this evening is an anonymous protest which has been filed with a standing committee of this Society against the administration to school children of the toxin-antitoxin inoculation against diphtheria. No aspersion is cast upon the professional competence of the medical employees of the school board. Protests along other lines are included with the first but are unimportant. Not until near the close of the communication is the admission made that its animus may be the sting of lost fees; and this admission is hedged with the suggestion that the writers have at heart the protection of the physician ten years in the future!

I beg to say: the administration of diphtheria antitoxin as treatment against diphtheria has been in vogue in Denver since 1895.

Through the admirable cooperation between the Health Department and the School Board and the loyal support of the great majority, but by no means all of the medical profession, the horrors of diphtheria that we were accustomed to witness before 1895 have been largely ameliorated. But students of public health here and elsewhere have been greatly disappointed in the failure of this cure to banish diphtheria from our population. This has been due not to inefficiency of the remedy but to ignorance or carelessness of those who neglect its early and sufficient administration in the disease. Diphtheria still forms a disgracefully large proportion of our morbidity and mortality figures.

Now comes an alleged and well tested method of prevention,—the toxin-antitoxin inoculation. The dispute is not about its efficiency but concerns the conditions of its administration. It is not a **treatment** for disease but a **prophylactic** against it.

I cannot see how any sane, if honest, man can assert that **general** inoculations of this sort could be secured or would be offered by the medical profession; they would, at the best, miss the very class of cases that chiefly

make up the mortality figures,—the indigent poor and the prideful antis.

It is hardly conceivable that the Health Department would or could undertake this broad function except as a sympathetic coadjutor.

Now comes our School System with its 45,000 clients of tender and susceptible age who are compelled by law to attend its exercises.

A School Board of long experience in co-operation with the health authorities has the intelligence, the humanity, the initiative to offer to help stamp out the most dreadful disease of childhood at its very source. And it presumes in no way to supplant the private physician in doing this work but only asks that the work be done. Parents who prefer that their children be inoculated by officials of large experience in this field rather than by their family doctors, certainly deserve some consideration.

The gist of the matter is that a Way, the only practical way, is offered for the protection of public health. Who will dare to oppose it?

I beg also to offer a closing reflection.

Medical Science and Art, Economics, Sociology, all operate under the dominion of laws that transcend us. It is the mysterious urge of Evolution which tosses the stars in one hand and the electrons in the other. It is our business to apprehend those laws and obey them. This is the beginning of the age of universal health. Mystery has seen its day as a medical asset.

Our patients are our collaborators. We can only have their confidence when they believe that their interests outweigh with us our own.

When labor saving machinery began to be introduced the working man opposed it on the ground that it would take the bread out of his mouth.

The event proved far otherwise. Machinery put, say, 10 men to work at 10 times the wage where one labored before. So it is in health matters: Your public health lectures of last year, your popular Journal, Hygeia; your School Board revolutionizing the bodies and minds of undernourished children. The boy scouts, the girl scouts, the camp fire girls, all work together to gain us the public's confidence, to bring the public to us for advice.

The era of the old-time family physician seems about to return; they will see us not as "Doctors" but as learned friends who will tell them how not to need a doctor, and they will ask advice ten times for once they did before.

Robert Louis Stephenson in the "Treasure of Franchard", quotes the retired Dr. Desprez of his story as saying, "Doctor"! he would say, "doctor is a foul word. It should not be used to ladies. It implies disease, I remark it as a flaw in our civilization, that we have not the proper horror of disease. Now I, for my part, have washed my hands of it; I am no doctor; I am only a worshipper of the true goddess Hygeia. Ah, believe me, it is she who has the cestus."

THE MENACE OF UNRESTRICTED MEDICAL CHARITY

J. W. AMESSE, M.D.

In a noteworthy address before the State Medical Society of Wisconsin in 1925, Dr. M. L. Harris, Chairman of the Judicial Council, American Medical Association, in speaking of the problems of the medical profession, said, among many other trenchant things, "there is a vast difference between the physician giving charity to the needy one who applies to him for such services and the giving of his time and energy to the public in a matter that it is the plain duty of the public to provide for. The physician should

give more heed and study to things of this kind and learn to discriminate between those matters which are truly altruistic and those which are not."

Those who have noted the multiplication during the last decade of agencies, municipal and private, extending without restriction medical and hospital aid to all who may apply for such service, will endorse such sentiments as these unreservedly. The duties and responsibilities of the physician are very properly stressed on every possi-

ble occasion, but one hears very little of his rights and privileges. The undergraduate learns something of medical ethics but nothing at all of medical economics. Formerly taboo in professional circles, it is now claiming the attention of many state societies and must continue to be a subject for discussion as long as practitioners of medicine have families to support and obligations to meet. As Dr. Harris remarks, in his stirring plea for sounder business principles, "a profession born and bred in humanitarianism and altruism has naturally been slow in acquiring a sound knowledge of business methods". And while we all despise the commercialized doctor, there must or should be, between him and the parlor philosopher who would cheapen medical science by giving it away, a middle road on which every practitioner might travel far and still look his neighbor in the face.

Early in 1926, a group of Denver physicians, about 100 in all and comprising the majority of those attending for years past the various free clinics of the city, met for a casual discussion of their work and an informal survey of the field so rapidly broadening in the several centers served. So many cases of imposition and abuse of charity were presented at this time that a more or less permanent organization was decided on, and a committee was appointed (Dr. T. R. Love, Chairman; Dr. C. E. Cooper and Dr. J. W. Ames) to investigate the matter of unregulated medical assistance to the Denver public. The committee accepted this responsibility with full knowledge of its serious import. They realized that the overture was a new one and believed that any intensive study of the problem would arouse hostile criticism. In this they have not been disappointed! During the progress of our investigations, for example, it was found that it has been entirely possible, up to the present, for families in modest and even in very comfortable circumstances to secure, without charge, all ordinary medical and surgical services in the free dispensaries. Little or no inquiry was ever made into the financial responsibility of the applicants. It was repeatedly shown through

the incontestable evidence of the patient's free and voluntary admission that parents with average incomes, but without self respect and without that sturdy independence that has made this country what it is, have reared their children and have had them reared for year in and year out without contributing one dollar to a doctor's income.

Skilled laborers with incomes far exceeding that of the average physician could, with little effort, and still less danger of exposure, command the services of our leading specialists, evidently with the idea that the world owed them a living and that the doctor was paying the world's debts!

In our conferences with representative groups—internists, surgeons, pediatricians, radiologists and others—it was promptly determined that the chief complaints were directed against the out patient departments of the Colorado General Hospital and the Children's Hospital, numerous instances of imposition being reported, which in many cases were readily confirmed. On calling the attention of the authorities to this matter, Superintendent Bocoek of the State Hospital and the Woman's Board of Managers of the Children's Hospital immediately instituted an investigation with the result that nearly ten per cent of the applicants for free services during the past winter have been rejected as unworthy. The fine spirit of cooperation and assistance shown by these hospitals is genuinely appreciated by the respective staffs, proving as it does that there has been no desire to extend aid to any other class than the indigent sick. In this connection it may be well to reassure ourselves that the Denver profession, in so far as sterling adherence to its finest traditions are concerned, needs no defense. Three times within the past ten years it has been tried and not found wanting; the first, at the outbreak of the war, when so many volunteered for active service at home and abroad; again, when the pandemic of influenza challenged the courage and devotion of the medical fraternity everywhere and, still further during the distressing epidemic of smallpox which was brought under control and finally subjugated only through

the combined and voluntary efforts of the physicians of Denver. In neither of these emergencies were financial considerations, personal comfort or personal safety given a thought. There is not the slightest desire here to deviate for a moment from the exalted code of ethics which distinguishes medicine from all other callings, but rather a crystallization of sentiment against the medical grafter who has violated every sense of decency and self respect. In the last analysis such restrictions benefit the public even more than the medical profession. If we encourage the pauperization of a considerable element of our population through free clinics, it can only tend to "still further weaken the backbone and moral fiber of those whose only incentive to work is to be found in the necessities with which they are faced." Stultifying oneself to obtain even the blessings of sweet charity is not conducive to the highest citizenship. In discussing unregulated clinics, Dr. Bigelow, speaking to the Ohio State Medical Society, calls attention to the frequent over enthusiasm of welfare organizations and their desire for impressive statistics to adorn annual reports. He believes that through the medium of paid, professional social service workers the business of the hospital of the clinic is stimulated artificially, and that many are invited in for free service who are amply able to pay a private physician. The basic difficulty, of course, may be found in the utter neglect of the average family to incorporate in its budget a reasonable sum, say five per cent, for expenses incidental to sickness. It would appear that if half the effort devoted to the care of the constitutionally hard up could be deflected toward teaching these people how to care for themselves, a considerable burden would be permanently lifted from society.

Among the criticisms of free medical service in Denver were a number directed against the administration of toxin-antitoxin by the school physicians to children of parents who could afford to secure this protection from a private practitioner. The most vigorous and insistent protest, as a matter of fact, came from one of the school

physicians, who stated that while the original plan to give these injections to those manifestly unable to pay seemed just and proper, the work had now extended to include pupils of the best residential districts. The method employed is to send a circular letter to parents asking their permission to administer toxin-antitoxin, the organic law providing for medical inspection of school children in Colorado authorizing neither curative or preventive treatment without the parents' consent. In conference with Dr. Beaghtler, chief of the service, we were informed that only 28 per cent of the parents consented to the administration of toxin-antitoxin, leaving 72 per cent of the school population and 100 per cent of the children of pre-school age in these districts unprotected against diphtheria. The chief objection coming from a school official, it was decided to bring the matter before the county medical society, which was done in a report read by Dr. T. R. Love outlining the above defects and suggesting such changes in the methods of administering toxin-antitoxin as would insure protection to all children in the city. This report was accepted without debate. A few days later a special meeting of the society was called to discuss State Medicine in general, and after thorough consideration a resolution was adopted requesting the President to appoint a committee for further study of these problems which would report at the first business session after the summer vacation. This constituted, in effect, a vote of confidence in those initiating this matter, the point being well established that our only object was to protect both the public and the profession alike. The wholesome cooperation of the society with the City Health Department can bring about as full a measure of protection against diphtheria as now obtains against smallpox.

In conclusion and surveying the problem of medical charity from every viewpoint, we may well be guided in this matter by the dictum of Roosevelt, when speaking of immigrants, "we can't have too many of the right kind and we want none at all of the wrong kind."

IDEALISM IN MEDICINE*

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As I anxiously scanned the horizon of the medical world for some rift through which a ray of light would come to illuminate the dark recesses of my icterous brain, in order that I might select some medical topic of special interest, I soon determined that we all were perhaps somewhat plethoric and possibly nauseated by the menu of the professional training table. I therefore chose to set before you a tid-bit which I hope will not leave you with an acidosis.

Mankind in general is endowed with two curiously dissimilar characteristics—an insatiable curiosity and an intensive desire to believe. Eager to know that which is hidden, we are sadly lacking in the critical sense which should guide our judgment in the acceptance of new knowledge. It is with the greatest difficulty that we separate fact from fancy, employ the power of analysis, and reject that which is not proven, once we have set our minds on believing it.

Man's curiosity has been responsible for most of his progress. The desire for knowledge has resulted in the scientific discoveries that have done so much to ameliorate his condition, as many of the mysteries of nature have gradually revealed themselves before his searching mind. In all his researches, however, his greatest obstacle has been the innate tendency to accept as proven that which he wished to prove. The working hypothesis has been the goal which he has always striven to reach; sometimes the goal has been accomplished; often it has led on long roads of labor that had no fruitful end.

I quote Pollock—"In today's complex civilization there may be said to be six grand divisions of labor: Industry, business, technological, scientific and artistic pursuits, and professional service. Theology, law and medicine are designated as the three learned professions. A profession is supposed to give service to meet the physical, mental, moral or spiritual needs of man."

"Its members are bound by a code of eth-

ics. They are not circumscribed by the number of hours they may devote to their daily work, or by a fixed hour for beginning and ending employment, or by rules limiting the amount of their daily production. They do not labor for so much an hour. Knowledge rather than stock in trade or physical strength forms their capital. Fundamentally the professional man is supposed to perform work which he enjoys doing for its own sake. It has been said that 'the business man seeks to make money, the laboring man labors to make a living and the professional man strives to make a life.' "

The medical profession is distinguished from all others by its beneficence. It dispenses its charity widely. It directs its best thought and energy to the lessening of human suffering, and does not hesitate to restrict its own future activity by an earnest effort to prevent every preventable disease. Indeed, prevention rather than cure has become its watchword.

Hear what Robert Louis Stevenson has said of the physician:

"There are men and classes of men that stand above the common herd, the soldier, the sailor and the shepherd not infrequently; the artist rarely, rarer still the clergyman; the physician almost as a rule. He is the flower (such as it is) of our civilization; and when that stage of man is done with and only to be marveled at in history, he will be thought to have shared as little as any in the defects of that period and most notably exhibited the virtues of the race. Generosity he has, such as is possible to those who practice an art, never to those who drive a trade; discretion: tested by a hundred secrets; tact, tried in a thousand embarrassments and what is more important, Herculean cheerfulness and courage. So that he brings air and cheer into the sick room, and often enough, though not so often as he wishes, brings healing."

Four factors enter into the achievement of success:

The first of them is WORK. Sir William Osler has said, "The Master Word in Medi-

*Read by the Retiring President of Pueblo Surgical and Pathological Society, December 9, 1925.

cine is 'WORK.''' If success is to be ours WORK must become our "master word."

Truly there is no royal way to learning and truly there is no primrose path which leads to success. Hard, patient, persistent work must be our portion. Each day perform the work that is given us and thus take full advantage of the opportunities as they present themselves.

We must always stand ready and willing and even anxious to do and to do just a little more than is given us to do.

"If any man ask you to go a mile walk with him twain." This is the "Second mile of privilege."

The second factor is COURAGE. Hugh Walpole in his novel "Fortitude" has one of his characters say, "Tisn't life that matters, 'tis the courage you bring to it."

The present is the golden age in medicine. During the past fifty years the advance in medical science has been so wonderful and its effect on human happiness, so far reaching that never has there been like achievement within the memory of man.

The third factor is KNOWLEDGE. In this I include wisdom, which is not only knowledge but the capacity to make use of it.

A rapid survey of accessible titles in recent progress in medicine creates the impression that studies of the human subject are on the increase. That we are getting down to brass tacks. That real scientific knowledge is being worked out and made more plain to those of us who cannot till the scientific soil. We can be reapers however.

Medicine is advancing, and ever advancing, and that new knowledge must be constantly gained if we are to keep abreast with the progress made.

In short, we must be ever an earnest seeker after knowledge, remembering:

"The clouds may drop down titles and estate;

Wealth may seek us but wisdom must be sought;

Sought before all; (but how unlike all else
We seek on earth) 'tis never sought in vain."

Certainly one must have a keen analytical mind. Knowledge and wisdom, from the large and constantly increasing experiences

of the day, are ours if we but seek diligently.

The problems of the patient, his hopes, desires, social adjustments, etc., make up the real stuff of life.

My fourth factor in success is PERSONALITY. I can give you the admirable summary of personality as written by Dr. Joseph Coffin in the concluding pages of his book "Personality in the Making." Dr. Coffin says, "It is not sufficient to enumerate the physical characteristics or to catalogue the superficial traits of behavior. Study of his mental activities will enable us to discover whether or not he is a problem-solver; into his dynamo room, to see how much power and initiative he can generate. On the outside we must discover whether he is rooted in the rich soil of a good heritage, and whether the windows of his mind are open to the thought, the appreciation, the will of the people, that make up the world in which he lives, moves and has his being.

"We must find whether he has drunk in the spirit of the institutions which stand close to him; whether or not he possesses the essence of spiritual insight and power which are the product of real education.

"We must look to see whether or not he manifests that fine sensitivity to the welfare of others and that susceptibility to the invitations of his own conscience to become his ideal self, which mark the moralized person.

"As the final test of personality we must ascertain first the degree of efficiency with which he administers his own interests; whether he has learned to work and to utilize the fruits of his labor for his own personal upbuilding; second, whether he has dedicated his efficiency to the service of society and pays in the coin of his labor for the nurture he has received at its hands. Whether he has come out on the high plateau of vision from which he can see something of the meaning of the world-order and whether his own system of plans telescopes with the larger system of society and the divine order."

Dr. Coffin goes on to say, "If he measures up to these searching tests, a man has fulfilled the conditions of personality. He has earned the respect, admiration and honor of the community, in token of which so-

ciety bestows on him its best emoluments in money, friends and position. But in addition to this recognition by society he has earned the high self-respect and contentment which are the subjective symbols of true happiness."

Thomas has said, "Life is a road and success the destination."

"As a man thinketh so is he," and as he is, so is his personality.

"Sincerity," Carlyle says, "I should say sincerity, a deep, genuine sincerity, is the first characteristic of all in any way heroic."

If the medical profession is to hold its honored place, we must ever strive to maintain that due respect which only sincerity and integrity can create and hold.

Tactful and kindly methods with our patients will most surely create an impression of respect and love for the physician and his profession.

What is success in medicine? Can we measure it?

Integrity, Sincerity, Loyalty, Courageousness, Faithfulness, Gratitude, Broadmind-

edness, Confidence, Generosity, Fortitude, Wisdom, Tactfulness, Discretion, Cheerfulness. All these virtues and more are contained in

"The Golden Rule."

"As ye would that men should do to you: do ye also to them likewise."

Let us drink of this pure, sparkling water as I

Toast—"Here's to you and here is to me,

To you as good as you are,

To me as bad as I am,

But to you as good as you are,

And to me as bad as I am,

I am as good as you are,

As bad as I am."

I take from the New York Sun the following:

"A MAN that is clean inside and out; who neither looks up to the rich nor down to the poor; who can lose without squealing and who can win without bragging; who is too brave to lie; too generous to cheat; who takes his share of the world and lets other people have theirs.

WHY ALIENISTS DISAGREE IN LEGAL TRIALS

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No chapter in the history of mankind is so dark, tragic and cruel as the history of the insane. From time immemorial the mentally ill were looked upon as people possessed of evil spirits, witchcraft and various demoniac tricks. They were confined in dungeons and weighed down with chains. No provision whatever was made for their humane care until the latter part of the eighteenth century.

The cruel attitude towards those unfortunates was largely due to our utter lack of knowledge about the workings of the most complicated organ of the body—the human mind. The science of medicine which had practically eradicated yellow fever, malaria, typhoid epidemics, bridled the moloch of diphtheria, tuberculosis and many other infectious diseases, gradually began to penetrate the human mind, both in its healthy and diseased states. Thus quietly, without ever appearing on the front pages of the daily press, it carries on its scientific and humanitarian work in manifold ways.

Medicine now approaches the human mind from many different angles. It is trying to prevent its disease and collapse, it ministers to it when it has passed prevention, and it teaches how to strengthen and augment its capacity. Mental hygiene clinics are rapidly being established throughout the country. Psychopathic hospitals are looked upon with even more civic pride than the ones established for the physically ill. Physicians and laity alike realize now that the insane man is in reality a sick man, that he differs from the physically ill in the fact that instead of a diseased stomach, kidney or liver, he suffers from a diseased brain. Instead of fever and pain, the insane suffer from delusions, hallucinations and a host of other symptoms.

About fifty thousand of these unfortunates are admitted annually to various institutions. There they are treated humanely by expert medical men and specially trained nurses. Society justly looks upon it as a matter of

course. However, every now and then a monstrous manifestation of a diseased mind takes place in the form of a Noel murder, a Leopold-Loeb murder, or "our own" Shank, Blazer, Massie murder. Suddenly, a tremendous swing of the pendulum takes place. We hang or electrocute these victims instead of burning them at the stake as in the days gone by. The laity once more becomes the sole judge in the matter of interpretation if a given individual is or is not mentally ill. Alienists, needless to say, are always present and . . . well . . . nearly always disagree. The people are perplexed at their attitude and ask "Why do they disagree?" The occasional reply of the cynic, "Because they are paid to disagree," is hardly worth while dilating upon. Judges, defending and prosecuting attorneys alike will unhesitatingly testify that in the majority of cases, alienists give their honest opinion. But why do they differ? The answer is, "Alienists differ because of the peculiar interpretation the law gives as to what constitutes and what is meant by insanity. Paradoxical as it may sound, it is a fact that in most cases where alienists oppose each other they are practically testifying to the mental condition of two distinctly different individuals. Take the Shank and Blazer cases. In both trials, alienists disagree. In the Shank case two alienists for the defense made a most careful study of the mental condition of Ray Shank. Their opinion and testimony was first, last and all about Ray Shank. The alienists for the prosecution could not study Shank as carefully and as thoroughly because Shank resisted being examined by one who was employed by the district attorney. That alienist then sat in court and listened to "sustained and overruled objections", direct, cross and redirect examination" and oratorical fireworks of the battling attorneys.

The district attorney, whose integrity and ability is questioned by no one, called up one of the alienists two days before the trial. "Tell me", he said, "what kind of a mental disease do you claim Shank has? I am asking you this because I want to read up on this disease so that I may cross-examine you intelligently." And, to be sure, the district attorney not only learned in two evenings all

there is known about a most complicated mental disease, but he cross-examined the alienists and told them wherein they were wrong, and he also explained to the jury what the disease really is. As an officer of the law, the district attorney did indeed execute his mission to the fullest capacity.

The law is so constituted that one alienist, usually the one employed by the defense, testifies about the defendant and the defendant only. The alienist for the prosecution to be sure, swears to tell "the truth, the whole truth and nothing but the truth." And, so he does. Only he tells the truth not as it really and wholly pertains to the given defendant, but to the truth as propounded to him by an attorney. The latter invariably quotes disconnected fragments from books, and speaks of generalities which have seldom anything in common with the given defendant. Thus, in the Shank case, one attorney "entangled" the alienists.

"Did you take Shank's temperature? Did you ascertain how his sweat glands act? Did you examine his pupils? You did not, did you?" exclaimed the jurist, "and this book states that it is important." A great deal was made out over similar insignificant instances which are of absolutely no importance so far as the mind of Ray Shank was concerned.

One alienist tells the truth about the mental condition of one individual and the other about an abstract condition, possibilities and probabilities. Supposedly, however, they are talking about one and the same thing.

In Shank's form of insanity, heredity is one of the most important factors. The defense alienists were satisfied that mental disease existed in his immediate family (grandmother and sister). Legal technicality barred this evidence. The alienist for the prosecution was compelled to testify to a Shank who had no more in common by blood with his own insane grandmother and insane sister than the King of Tibet. And, of course, "alienists disagree".

The Blazer case is another illustration. Two alienists examined Dr. Harold Blazer. Their opinion was based wholly upon the result of their study of Harold Blazer. Their testimony and opinion was again first, last

and always of the mental reactions and manifestations as they found them in Harold Blazer. The defense attorney consulted a third alienist about the case. The latter **could not testify that Harold Blazer was insane.** The attorneys then arranged matters so that other alienists could testify; and, to be sure, they gave their honest opinion, but that opinion was chiefly to a "hypothetical question". And so again "alienists disagreed". Two testified primarily to the mental condition of Harold Blazer, and two primarily to a hypothetical question carefully worded by an expert attorney. The hypothetical Harold Blazer of whom the alienists for the defense testified had very little in common with the mental condition of the Harold Blazer of whom the alienists of the prosecution testified.

In the very recent Massie trial alienists testified both, for the defense, and for the prosecution. The attorney for the defense called an alienist to testify. He promulgated the substance of his hypothetical question in these words: Now, Doctor, granted that the questions I am about to propound to you are facts, granted that the defendant freely consumed of poisoned moonshine whiskey to such an extent that he became terribly sick, unconscious and had several convulsions, and granted further that it is a fact that this condition lasted for about twenty hours and . . . is it, in your opinion probable that the defendant could have suffered from a condition technically known as alcoholic amnesia?

The prosecuting attorney propounded the hypothetical question to his alienists in these words: "Now, doctor, supposing that the defendant had only one drink of moonshine whiskey and supposing further that he was not sick, was not unconscious, and furthermore granted that it is a fact that all the time after he had this one drink of moonshine whiskey, he acted in a perfectly rational manner, and had manifested keen judgment in all of his actions, in your opinion, this defendant have suffered from alcoholic amnesia? It is needless to state what the answer of the so-called opposing physicians were.

There are of course cases of mental disease, particularly the borderline conditions, where alienists vary, just as surgeons, intern-

ists vary (or judges for that matter). These factors, however, are not nearly of as much importance as is the legal aspect that alienists have to deal with.

The position of the alienists in these three trials is typical of the majority. The jury entangled by legal technicality, confused by scientific terminology, and not overly versed in mental disease takes it as a matter of fact that the alienists testify about one and the same thing; and as they disagree, it justly takes matters in its own hands, and becomes the expert diagnostician in mental disease.

The logic of this needs no comment. The question now remains how to make alienists agree. The answer is simple: Try every criminal as to whether he is or is not guilty of the crime. If guilty punish him, and if there is a doubt about his sanity let an impartial board of alienists appointed by the court, decide. Let them study the man in the same scientific and unbiased way as they study any other patient. Under such conditions they will study the given defendant and defendant only and not a hypothetical individual. Then and only then will justice be done to the mentally ill and alienists will agree.

Fit for Infection

The commonly accepted idea that good physical condition is a safeguard against infection from disease germs has received somewhat of a blow from the results of experiments carried out by Dr. Reynold A. Spaeth in the laboratory of the Johns Hopkins School of Hygiene and Public Health. Dr. Spaeth found that female white rats which were "in training" as a result of exercise resisted one type of pneumonia infection less well than control rats kept in restricted quarters, where exercise was impossible. It is as yet too early, Dr. Spaeth felt, to advance any theory in explanation of this unexpected situation. The experiments, however, dispose of a suggestion that had been brought forward to account for the results of some earlier work on the same public health problem—the relation between physical condition and resistance to infection.—Science Service.

New Hospital Site for War Veterans

The 550-acre Hodgens estate, at Northport, on the sound border of Long Island, has finally been selected as the site of the 1,000-bed neuropsychiatric hospitals for war veterans. This decision was made at Washington on August 10 by the Federal Hospitalization Board of the Veterans' Bureau.—National Board Bulletin.

The United States used about 400,000 tons of stone for building monuments and grave-stones last year.

THE BASIS OF DIET*

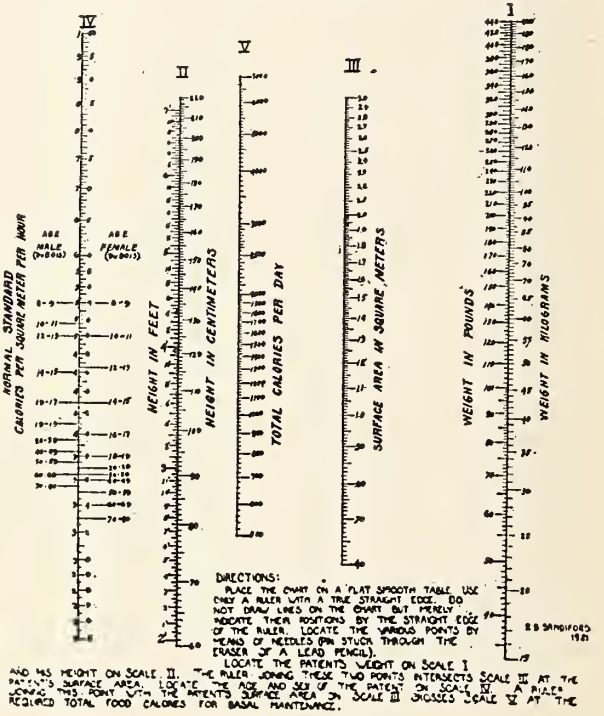
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A diet is a restricted quantity of food intended for a given purpose. A basic diet is the minimum quantity of food consistent with the maintenance of health. A special diet is a calculated amount of food which contemplates the special needs of the person for whom prescribed.

Diets are conveniently considered in terms of calories. The application of the physical heat unit to the measurement of the needs of the body is based on the isodynamic law which states that when a quantity of food is burned within the body it liberates approximately the same number of calories that it would liberate if burned outside of the body. Diets in the first place contemplate the caloric needs of the body. The caloric or energy needs of the body may be determined in a number of ways from the calculation of the heat loss of the body. It is evident that in a healthy adult the caloric intake must equal the energy loss. The heat loss of the body may be determined directly by actual measurement by the use of a large calorimeter; but this is a cumbersome undertaking and may be performed only in a large nutrition laboratory; also it may be determined indirectly from the basal metabolic rate by calculating the heat production from an analysis of the end products of respiratory metabolism resulting from oxidation within the organism or specifically from the amount of oxygen used, the corresponding amount of carbon dioxide produced together with the total nitrogen eliminated in the urine. The basal metabolic rate for a healthy person approximates a constant for a given moment; but it varies with age, sex, food taking, exercise of any kind, fevers and disturbances of the heat function notably in hyperthyroidism. The basal metabolic rate of any normal person, that is, his heat loss and hence his energy requirements may be determined in a few moments from the use of standard charts such as prepared under the direction of Dr. R. M. Wilder of the Mayo

Clinic. Given the age, sex, height and weight of a person with the help of a straight edge and a pin, the basal caloric requirements may be calculated within a few moments. The figure so obtained gives the caloric needs for a bed patient at absolute rest.

DIABETIC DIET CHART I



Wilder's Chart No. I used to calculate the basal caloric requirements of the patient from the age, sex, height and weight.

For example, a man of thirty years, weighing one hundred fifty-four pounds, five feet ten inches in height will be found to require 1800 calories, which is his basal caloric requirement.

However for persons moving about, the caloric needs are much greater and vary constantly from day to day and moment to moment. For example, if the man just mentioned leaves his bed and walks for one hour on a level road at the rate of 2.7 miles per hour he expends 160 calories above the basal heat loss (Lusk). In a similar manner a great many activities of the human body have been studied, from which it has been determined that for an average adult engaged in light work 2450-2800 calories are required per day; for moderate work 2800-3150 calo-

*Read before the City and County of Denver Medical Society, April 6, 1926.

ries, and for heavy work 3150-4200 calories (Joslin).

But calories alone are not sufficient in planning a diet. Two pounds of sugar for instance supply 3720 calories or sufficient caloric needs for a laborer at heavy work, but no one would relish such a diet for very many days. A diet of this kind is absurd on the face of it. The body requires other things besides calories alone. Carbohydrates are required as primary energy formers; proteins to restore the loss from tissue destruction; fats as a reserve supply for the fuel needs of the body also to help build the contour of the body; water as a primal need; salts to build the skeleton and to maintain the concentration of the various body fluids; vitamins to regulate the body metabolism; and roughage to stimulate peristalsis. Pure concentrated foods won't do. A certain amount of roughage is an essential part of a diet. This has been emphasized by the work of Bayliss and Starling who have championed the **law of the intestine** which declares that intestinal peristalsis is stimulated and initiated locally by mechanical contact within the lumen of the gut.

ESSENTIALS OF A DIET

(For an average normal man)

1—Caloric needs

at light work 2450-2800 calories.

at moderate work 2800-3150 calories

at heavy work 3150-4200 calories.

2—Water.

3—Carbohydrates.

4—Fats.

5—Proteins

6—Vitamins.

7—Roughage.

Ordinarily diets are calculated in terms of calories, carbohydrates, fats and proteins. The caloric value of these substances are known and are generally given as:

1 gram carbohydrate equals.....4.1 calories

1 gram protein equals.....4.1 calories

1 gram fat equals.....9.3 calories

1 gram alcohol equals.....7.1 calories

The diet for a normal average weight man being given at 3100 calories should be distributed among the principal food stuffs according to Einhorn as follows:

120 gram protein	$\times 4.1 =$	492 calories
60 gram fat	$\times 9.3 =$	558 calories
500 gram carbohydrate	$\times 4.1 =$	2050 calories
		3100 calories

To plan an exact dietary to comply with the requirements of this plan we might consult any standard book of food values such as "Locke" and calculate the exact balanced diet.

COMPOSITION OF SOME COMMON FOODS

	pro- tein per cent	fat per cent	car- bohy- drate per cent	calo- ries per 100 gram
Cow's milk.....	4.0	3.5	3.7	64
Cream	3.6	26.7	3.5	276
Butter	0.5	90.0	0.5	837
Egg	12.5	12.0	0.5	165
Beef, lean	20.8	1.5	0.	99
Beef, fat	17.2	26.4	0.	315
Wheat bread	6.0	0.7	52.0	245
Rye bread	4.5	1.0	46.0	216
Rice	5.5	1.5	75.0	348
Potatoes	1.5	0.	20.0	88

Before taking up the problem of special diets let us briefly review the principles of digestion, as these factors play so significant a part in the determination of the diet. Digestion begins in the mouth. The saliva contains ptyalin, a diastase which is capable of splitting certain carbohydrates. Digestion is continued in the stomach where the gastric juice is elaborated which contains hydrochloric acid, rennin and pepsin; the principle function of which is to break up the proteins into simpler substances as peptone and proteoses. A certain amount of absorption takes place in the stomach. Among the substances absorbed are, simple sugars, salts, water, drugs, proteoses and alcohol. The remaining chyme, as the partly digested food is now termed, enters the small intestine where it is almost immediately acted on by the pancreatic juice and bile which enter the duodenum through a common opening; also by the intestinal juices elaborated within the intestine itself. The pancreatic juice contains trypsin, a proteolytic enzyme; amylase,

a starch splitting enzyme; and lipase, a fat splitting enzyme. In addition the pancreas

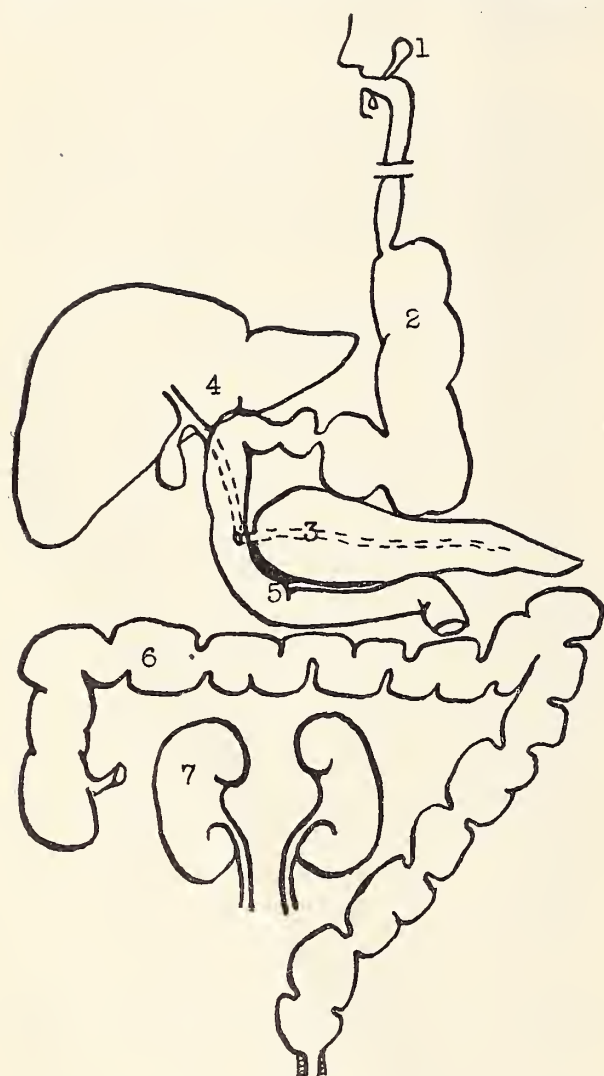


Diagram illustrating the anatomic locations of the principal steps in digestion and elimination,—factors that enter into certain dietary problems. 1—Digestion begins in the mouth, saliva acts on certain starches. 2—Stomach elaborates the gastric juice which contains hydrochloric acid, rennin and pepsin which break up the proteins; absorption takes place of the simple sugars, salts, water, drugs, alcohol and the proteoses. 3—Pancreatic juice enters the duodenum and contains lipase (fat splitting), amylase (starch splitting) and trypsin (protein splitting) enzymes. 4—Bile produced in the liver enters the duodenum through the common opening together with the pancreatic juice. The bile helps to prepare the fats for assimilation. 5—The small intestine elaborates the succus entericus which contains enterokinase, erepsin, and nuclease which prepare proteins for assimilation, also invertase, maltase and lactase which act on the sugars, finally secretin, a hormone which stimulates the pancreas and liver. In the small intestine the greatest amount of absorption takes place of all three of the principal food stuffs. 6—The colon acts principally as the excretory organ of the digestive system. 7—The kidneys act as one of the principal excretory organs for extra-intestinal metabolism.

through its islets of Langerhans elaborates an internal secretion which passes into the blood and controls the metabolism of sugars within the tissues. The bile is commonly considered as playing an important role in the splitting up of the fats in conjunction with the pancreatic lipase. The succus entericus, as the intestinal fluid is called, contains the proteolytic enzymes enterokinase, erepsin, also nuclease, which help to complete the splitting up of the proteins; also it contains the following starch splitting enzymes, invertase, maltase and lactase which help to complete the splitting up of the sugars; and finally secretin, a hormone, thought to play an important role in the stimulation of the pancreas, liver, and intestine. In the small intestine the greatest amount of absorption of the ingested meal takes place. Carbohydrates as dextrose are absorbed into the portal circulation where they are carried to the liver to be stored up as glycogen; fats are absorbed as fatty acids and glycerin by the epithelial cells of the intestinal mucosa and synthesized into the desired neutral fats and passed on to the lacteals and ultimately to the thoracic duct and venous blood. Proteins are absorbed by the blood vessels of the villi in the intestine. The large intestine functions principally as the excretory organ of the digestive apparatus. In the first part of the colon the remaining water and salts of the chyme are removed, but otherwise the function of the colon is the formation and expulsion of the feces.

The kidneys should be mentioned in connection with the excretion of waste matter though not a part of the digestive system. They perform the same function for internal or tissue metabolism that the colon performs for gastrointestinal digestion, namely they excrete the waste matter as urine in the form of urea, salts and water.

In considering the problem of special diets we are in fact considering the application of diet to diseased conditions. Certain basic principles are used as guides. The first of these is rest. Just as rest is given to a fractured bone by placing the injured extremity in a cast, or a tuberculous lung may be collapsed as in pneumothorax; just so rest

is given to that part of the digestive system which is involved in the disease process as far as it is physiologically possible to do so. The second principle is to establish a basic maintenance diet in order to eliminate all unnecessary metabolic activity. Sometimes it is desirable to give less than a basic diet, but it must be borne in mind that the patient will lose weight under this regime, and this must be compensated elsewhere.

Among the disease states for which special diets are prepared are:

Acute infections. Liquid and semi-solid foods are given because these are the most digestible of foods, also the caloric intake is reduced to the basal maintenance diet to eliminate all unnecessary metabolism; later the caloric intake must be increased to compensate for the initial loss of weight.

Chronic infections, such as tuberculosis, require a high caloric diet with a high protein content to provide ample protein material for tissue repair, however the danger of over-eating must not be overlooked even in the tuberculous.

Diseases of the gastrointestinal tract. In ulcer both of gastric and duodenal origin the time honored Sippy treatment has found favor the world over. It is a rare compliment to American medicine to know that in some of the clinics of Vienna the Sippy treatment is used. This treatment begins with three ounces of half milk and cream every hour for fourteen hours in the day. Upon analysis it is noted that this diet is given in the most digestible form of nutriment, it provides 1591 calories which is nearly a basic diet for an average weight man, it provides the proper amount of necessary fats, proteins and carbohydrates, salts, liquids, vitamins, its ketogenic-antiketogenic ration will satisfy even the most fastidious dietitian; further the milk proteins combine readily with the acid and so remove it as a source of stimulation of the gastric pain; in fact with one possible exception namely that it fails to provide sufficient roughage it answers every requirement for an ideal diet; however this one shortcoming is compensated by the magnesium oxide which forms an integral part of the regime and which sup-

plies a laxative action. In the functional disorders of gastric secretion as in hypersecretion, those foods are given which exert a weak secretory stimulus upon the gastric juice, as alkaline waters without carbon dioxide, milk, cream, cocoa, cream, fats, starches and other bland foods. In hypersecretion on the other hand the strong secretory stimulants are given as coffee, rare meats, carbon dioxide beverages, fresh fruits and vegetables, spices, etc.

Functional disorders of the small intestine. Fermentative diarrhea being a disturbance of the carbohydrate metabolism within the gut, it is customary to withdraw the carbohydrates from the diet after a preliminary period of starvation; whereas in putrefactive diarrhea which is a disturbance of the protein metabolism within the gut, it is customary to withdraw the proteins from the diet during the treatment. Specific diarrheas must be treated specifically, in general a light sustaining semisolid diet accompanies the special treatment.

Colon. In atonic constipation a diet rich in roughage and fats is commonly given; while in spastic constipation a similar diet is also found useful; although the medical management varies in that in the spastic form belladonna has been found very useful. In non-specific colitis, an attempt is made to give the colon the maximum amount of physiologic rest by prescribing such foods which tend to be completely digested in the stomach and in the small intestine, and whose digestion leaves a minimum amount of residue. Under a regime of this kind many cases of mucous colitis will respond to rest and diet with a minimum amount of medication.

Liver. Treatment of liver disorders is an unsatisfactory part of dietetics because the altered physiologic states of this organ are poorly understood in comparison to some of the other organs. In general, fats are removed from the diet because of the impression that this procedure removes the burden of work from the liver, sometimes the starches are curtailed especially in obese patients.

Obesity and asthenia respond to caloric reduction and increase respectively, given the intelligent cooperation of the patient. These

conditions are among the most satisfactory to manage when the patient manifests the necessary intelligence and will power.

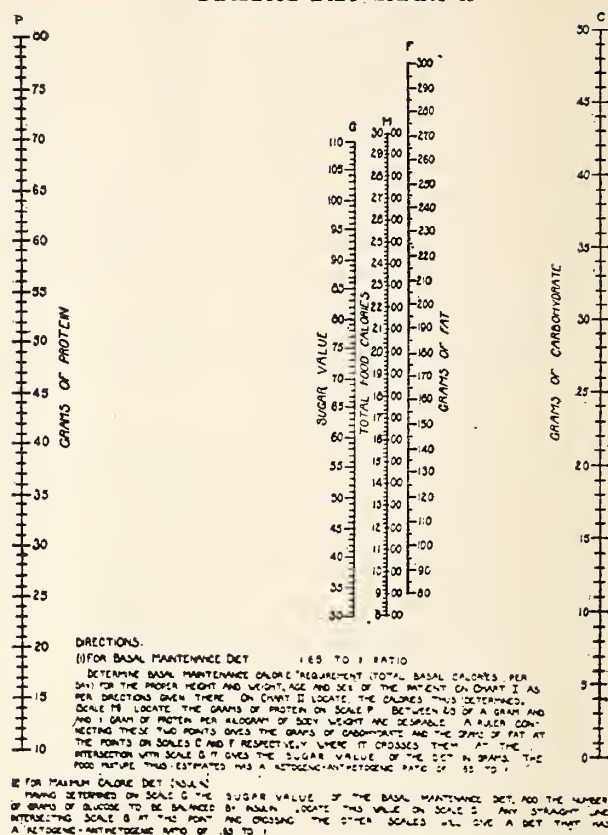
In gout and allied disorders of purine metabolism, a diet is planned with a duofold purpose; first to reduce the purine forming substances as meat and fish. Eggs are given as the necessary protein as these are thought to contain a minimum amount of purine forming substances; and secondly, elimination is encouraged by flushing the system freely with fluids.

Nephritis. In general the diet is planned with a view at the reduction of the fluid intake, proteins and salts. This is the basis of the Karrell treatment also Allen's method.

Diabetes. This disease calls forth the highest art of the dietitian. We recall that in diabetes there is a disturbance of the carbohydrate metabolism within the tissues due to failure of the pancreatic islands of Langerhans to elaborate their internal secretion; hence it becomes essential to control the carbohydrate intake. However it is not the carbohydrate imbalance that threatens the life of the patient, but the dreaded acidosis resulting from imperfect fat metabolism which gives rise to the accumulation of the various acetone bodies within the tissues, hence fat intake must be controlled, and proteins must be controlled because in their catabolism they give rise to fatty acid and glucose radicals. Hence all three of the principal foodstuffs must be restricted and balanced. The guiding principle here is that "fats burn in the flame of the carbohydrates, but in their absence they smoke." The three foodstuffs are restricted to the basic requirement and then balanced for their ketogenic-antiketogenic ratio. The formulas of Woodyatt have been found satisfactory in many clinics.

Case Report. The speaker desires to report a single case that was encountered at the University of Minnesota in which the foregoing principles were utilized to solve what appeared to be a difficult problem and the manner and methods used to analyze the problem. F. J. was admitted to the service with an admitting diagnosis of Diabetes Mellitus. On admission the patient was excreting over eight grams of sugar per twenty-four hours in

DIABETIC DIET CHART II



Wilder's Chart No. II used to calculate the basal maintenance diet and its proportion of protein, carbohydrates and fats from the basal caloric requirement obtained from the first chart.

his urine, and his blood contained 326 mg sugar per 100 cc blood, also he gave the usual signs and symptoms of the disease. However on physical examination it was found that he had bilateral pulmonary tuberculosis with large numbers of tubercle bacilli in his sputum; also the patient complained of epigastric distress and periodic pains apparently coming on about one hour after eating, and almost while he was being examined he had a gastric hemorrhage confirmed chemically both as to blood and free hydrochloric acid.

In considering the diabetes, the guiding dietetic principle is to restrict the diet to a basic balanced diet; considering the pulmonary tuberculosis, the principle is to give a high caloric and high protein diet; and considering the gastric hemorrhage alone the indication is for starvation. Starvation however was contraindicated by the markedly emaciated condition of the patient and also by the danger of starvation acidosis. A high protein and caloric diet was contraindicated

by the diabetes; so a restricted diet seemed the only available method.

His basal caloric requirement was calculated from the Wilder chart already referred to, and for F. J. who was a male, 38 years old, 5 ft. 11 inches in height and weighing 95 pounds, it was found to be 1440 calories. The time honored Sippy diet was considered as a possible solution. This consists of three ounces of half milk and cream every hour for thirteen hours, and upon analysis this is seen to consist of:

	carbo- hydrates	fats	protein	calo- ries
585 cc milk-----	29.2 gm	23.4 gm	19.3 gm	416
585 cc 20% cream-----	26.3 gm	108.2 gm	14.6 gm	1175
	55.5 gm	131.6 gm	33.9 gm	1591

It is seen that this diet will supply the requisite number of calories for the basal maintenance diet, also it supplies the required amount of protein, fat, and carbohydrate according to the demands of Wilder in the treatment of diabetes. In order to determine if the ketogenic-antiketogenic ratio of this diet is in accord with the strict demands for the diabetic patient, the formulas of Woodyatt are applied as follows:

Fatty acids = 0 carbohydrates + 0.46 protein + 0.90 fat
 glucose = 1.00 carbohydrates + 0.58 protein + 0.10 fat
 substituting the values obtained from calculation of the Sippy diet,

$$\frac{FA}{GI} = \frac{0 + 15.6 + 117.5}{55.5 + 19.7 + 13.1} = \frac{133.1}{88.3} = 1.5$$

which is a satisfactory fatty acid-glucose ratio according to the demands of Wilder. The diet appeared to be satisfactory at least for the management of the diabetic and the gastric condition and the patient was placed on it with the following results:

Date	blood sugar	urine sugar	Diet C	H	Prot	Fat	Calo- ries	Body Wt	In- lin
4-24-25	326	8.2 gm	30	30	90	1050	96 lbs	0	
4-26-25	326	3.7 gm	55	40	132	1591	95 lbs	0	
4-28-25		0	55	40	132	1591	94 lbs	0	
5- 4-25	240	0	55	40	132	1591	93 lbs	0	
5- 5-25		0	73	56	152	2012	93 lbs	0	
5-18-25	250	0	100	60	250	2890	97 lbs	0	
6- 4-25	111	0	100	66	250	2914	100 lbs	0	

It will be noted that in the six weeks the patient was under observation, his blood sugar was reduced from the high figure of 326 to the normal figure of 111 mg; the sugar in the urine disappeared on the fourth day and at no time reappeared, the patient lost weight the first two weeks of the treatment, but subsequently regained it and then continued to gain and passed the hundred pound mark which was quite an event in the pati-

ent's life since he had been under one hundred pounds for some time; the gastric symptoms seemed to disappear; and the gain in weight would indicate a probable improvement in the tuberculosis; and at no time was insulin used. We are inclined to regard this as a reasonably successful application of the principles of dietetics in what appeared to be a difficult case.

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A REPORT OF THE FLUID LEVELS AND A MODE OF INTRAVENOUS ABSORPTION FOLLOWING CAUDAL INJECTION

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By the use of x-ray plates, taken immediately following the injection of solution into the sacral canal, we have found that given amounts of solution reach rather definite levels in relation to the spinal column. Further experimentation has proved that a slightly injured vertebral vein will, under stress of increased pressure, permit solutions injected into the sacral canal to enter the inferior vena cava by way of the pelvic plexus.

To determine the levels reached by various caudal injections, it seemed advisable to inject an opaque substance into the sacral and then with the x-ray to immediately obtain a photographic record of the fluid level present. The material injected has not been the same in each instance. Bismuth subcarbonate in oil, though of decided greater viscosity than the solutions used, has given the same fluid levels and also a sharper x-ray shadow. Using these various materials in

eight different bodies, we have found almost no variation in the level reached with definite amounts of solution.

Injected into the sacral canal of bodies, within six hours after death, as for caudal anesthesia¹, we find that 30 cc. fills the canal just to the fifth lumbar vertebra. In one case, using a sterile solution of sodium tetroiodophenolphthalein, 1 gram to 30 cc., we found that in the living patient there was no variation from the above figure as determined on fresh bodies. In these, 45 cc. shows a fluid level definitely at the upper



border of the fourth lumbar vertebra; 60 cc., to the seventh thoracic; and 90 cc., to the lower border of the fourth thoracic vertebra². Using 120 cc., the fluid level was not detected above the third thoracic vertebra, this extra amount of fluid apparently being displaced laterally.

In one body, dead but three hours, we noticed on developing the plates that 120 cc. had only reached a level opposite the sixth dorsal vertebra. Since this was the lowest level we had observed for this amount, we suspected that some leak had occurred or

that the needle had not entered the sacral canal. An x-ray through the pelvis revealed that a most decided escape of fluid had been effected, showing the bismuth to be present in the external iliac veins and the inferior vena cava. The probable course was through an injured vertebral vein and thence into the pelvic plexus³. On autopsy, four hours later, the pathologist noted that the kidneys, lungs and heart were all beautifully injected with bismuth which was present in ample amounts in the inferior vena cava.

This case definitely establishes the fact that absorption into the systemic venous system of solutions properly injected into the sacral canal is apt to occur under certain conditions. Thompson³, in his studies, noted that "while the injection (sacral) was being made, the eosin solution flowed out from both external iliac veins." In reporting an instance of extreme respiratory paralysis, following caudal anesthesia⁴, we believed at the time that in this case, the increased pressure during the strain of labor forced a sufficient amount of novocain solution into the systemic venous system through an injured vertebral vein to cause the respiratory failure we noted.

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The Why of Forty-three Diphtheria Deaths

From the data available it appears that the parents (or patients) were wholly responsible for the fatal outcome in eleven of the forty-three cases on account of failure to call a physician promptly. In seven cases the physicians appeared to be responsible, while in twenty-two other cases responsibility was divided between the physicians and the parents (or patients).

The chief lapses on the part of physicians may be summarized as follows:

Delay in administration of antitoxin or failure to administer antitoxin.....	20 cases
Use of subcutaneous method of administration	18 cases
Awaiting result of culture before giving antitoxin	2 cases
Insufficient dosage of antitoxin.....	15 cases
(Evidenced in six cases by the fact that repeated doses were required.)	
No surgical intervention, although subsequently death occurred from respiratory obstruction	4 cases

PRACTICAL USE OF LOCAL ANAESTHESIA*

NOLIE MUMEY, M.D. GEORGE K. DUNKLEE, M.D.

Introduction:

There exists today, a widespread consideration throughout the country in the use of local anaesthesia in general surgery; therefore, we shall give you our impressions, gained by its use, dealing largely with methods that are highly practical and easily acquired; which resolves our paper into an intimate consideration as to how, and why we use local anaesthesia, with a group of 61 cases, summarized as follows:

Tonsils	23
Goitre	7
Cholecystectomy	1
Radical amputation of the breast.....	1
Lipoma of the breast	1
Urethral caruncle	2
Hysterectomy	1
Excision of varicose veins.....	2
Cervical and perineal repair	2
Removal of hemorrhoids	2
Incisional hernia	1
Femoral hernia	1
Appendectomy	3
Uterine suspension	4
Pelvic inflammatory disease.....	6
Abscess of the neck	1
Cervical glands of the neck	1
Circumcision	2

The word local, as we will use it, simply means to imply an anaesthesia that is induced by other methods than chloroform, ether or gas; and the scope of this paper will be limited to infiltration, field block, and spinal.

Advantages:

The advantages of local anaesthesia are many, one of the most essential things being, that one is trained to be very gentle with tissues. We do not know of any other measure whereby technique of the finer points of surgery can better be developed than by the use of local, especially infiltration and block forms. Needless to say, the modern trend of surgery is leading more and more toward this method. Some patients come to us because they do not want to

be subjected to the dread of etherization; they have that fear of "going to sleep", as they oft' times express it, and when assured that it is not necessary, they go to the operating room in a different frame of mind. Shock, of course, to a great extent is diminished, this having been fully demonstrated by Crile, who practices local and regional anaesthesia in all major operations, even when general narcosis is employed.

Indications:

The indications are far from universal, they depend upon the ability and the inclination of the surgeon, to say nothing of the condition and attitude of the patient. Its use may be easily considered in obstructive conditions of the oral passages, acute respiratory inflammations, abdominal emergencies, renal insufficiency, toxic conditions, chronic alcoholism, senility, and in all forms of goitre. Tonsillectomy in the adult, we believe should always be done under infiltration anaesthesia, rather than by general narcosis. We can control the patient in hemorrhage and do not subject them to the risk of lung abscess and other complications, that might arise from the use of a general anaesthesia.

Contra-Indications:

There are very few contra-indications in the use of local anaesthetics. At the present time, we do not believe that any form of anaesthesia is advantageous with patients at an age when they cannot cooperate with us; still, we are perfectly aware that in human experience in this line, we operate on very young children with satisfaction. Its use may be contra-indicated in a case where the patient has an unreasoning fear of it, or in one who manifests an unwavering opposition to it, or in one whose nervous system is not under their control. It may be used even in these classes of patients with good results.

Armamentarium:

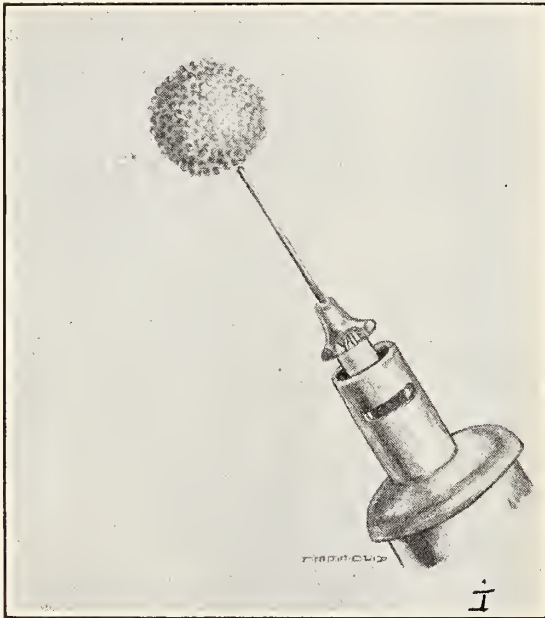
In this procedure, the proper kind of instruments are necessary to be successful. Luer syringes of different sizes, varying from 2 to 10 cc. The type we use has been modified by the non-slip Luer lock tip, and

*Read at the monthly staff meeting of Woman's Hospital, Denver, Colo., April 30, 1926.

is one that can be held firmly in the hand, a great advantage in applying pressure, and one of the essential things in obtaining good and rapid anaesthesia. The needles should all be new, and of different sizes, for infiltrating the skin as well as the deeper tissues.

Technique:

In general, there is a great deal more than having the armamentarium to carry out the technique. There is more than just the knowledge of how, when, and where to in-



ject, the terror of the patient, and the psychologic side of the operating room, is of great importance. It will occur to any one thinking along this line, that none of us possess the maximum of courage in undergoing this ordeal. The mental control should always be attempted by trying to secure the attention and engaging in a discussion of interest, and in this way the sympathy and cooperation is often enlisted. A person who is inclined to balk at the injection can often be rendered amenable by the presence of a sympathetic anaesthetist, or at the sight of ether, which he is assured is at his command. It is surprising how often this little ruse works. Very rarely, however, will the patient take advantage of the opportunity of getting a general anaesthetic, provided the local is well managed. In some of our patients, it has been necessary to cover their eyes, and to put cotton in their ears to keep them from seeing or hearing.

Preliminary Medication:

It is our custom to employ a narcotic as a preliminary procedure. Of course, we do not depend upon this form of medication to make the patient stuporous, we use it merely as an adjunct in cases where patients are frightened, and not to the extent where we have a combined anaesthesia. When a large amount of narcotic is given, that will render a patient stuporous throughout the operation, one is not usually operating under a local. If conditions are desirable, and it is needed to that extent, they should have knowledge of what part is played by the narcotic and what part is played by the anaesthetic, in order to evaluate the advantages of each. Such large doses carry within themselves danger, and this combined with local anaesthesia is apt to lay a heavier tax on the patient than general narcosis. Morphine and atropin has been the one that we employ, $\frac{1}{4}$ grain of the former and $\frac{1}{150}$ grain of the latter. We use the narcotic merely to allay the fears of the patient, and the local anaesthesia to allay the pain. Novocain requires no aid to control of pain, but it cannot prevent a patient from complaining at the first prick of the needle.

Novocain:

It is the best drug to use, and is as efficient, and much safer than cocain. It is slightly irritative and when combined with adrenalin, produces a comparatively bloodless operative field. We employ a 1 per cent solution, and try to calculate at the beginning the amount that is likely to be required. If an extensive operation is to be done, adrenalin is added until the patient will not receive over 10 min., the nurse adds 2, 3, or 5 drops to the ounce, depending upon the amount to be used.

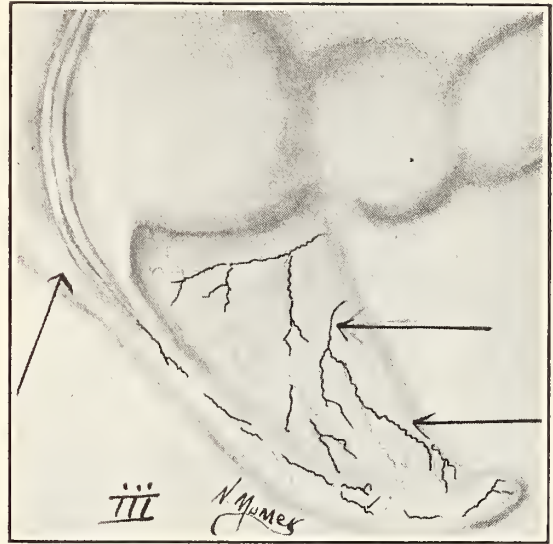
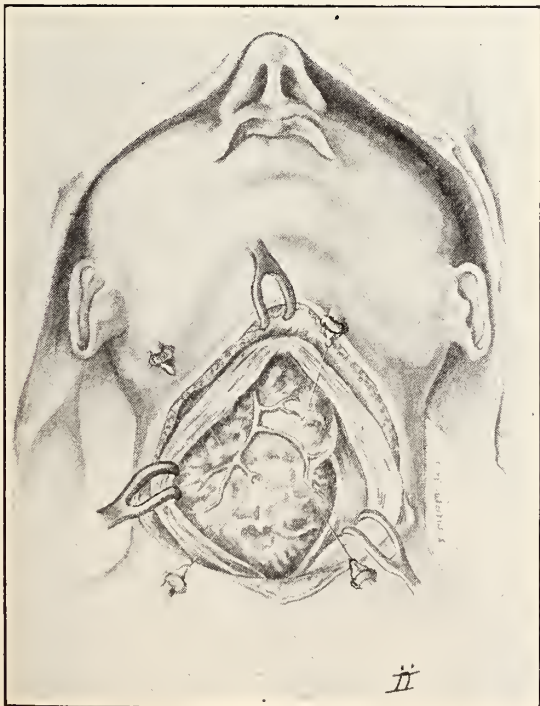
Wheals:

In the beginning of infiltration, it is necessary to make a successive number of injections with needles of different sizes, the site should be marked by the formation of intradermal wheals, which renders the skin insensitive to the introduction, as well as mark out the operative field. (Fig. I). Small needles should be used, introduced parallel with the surface, bevel edge running upward, di-

rectly into the thickness of the skin. As soon as the opening has disappeared, the plunger is gently pushed forward driving a little of the solution, until a white swelling begins to form in the tissue and takes on the aspect of an orange skin. One or more wheals according to the requirements are made, and through them a needle is subsequently introduced for all necessary injections. Each one should be made into the area without thought to the subcutaneous tissue; if the skin is delicate and movable, a fold can be taken up between the thumb and the index finger. The pain is very slight and disappears as soon as the solution has been injected. The success of any local depends to a great extent upon the wheals that are made. If there is any complaint, the patient will make it during this stage, therefore, we believe that one of the essential factors of successful anaesthesia, is to make good wheals. One should practice this little part of the technique thoroughly, until it is mastered, then there will be no trouble in the successful use of solutions for any kind of an operation.

Spinal Anaesthesia:

Spinal anaesthesia has held a great deal of interest, and has been particularly adapted in urological operations. It has been generally employed in a large number of surgical conditions, with satisfaction. In our meth-



ods in a series of cases, we have used it with success. The technique is to give the patient about forty minutes before the contemplated time of operation, a $\frac{1}{4}$ grain of morphine and $\frac{1}{150}$ grain of atropin, hypodermatically. They are then brought to the operating room and placed in a sitting posture, with the body flexed upon the knees; the site of injection is usually determined by whether a high or low operation is to be done. It is usually between the second and third lumbar vertebrae. A spinal puncture needle is then introduced and enough of the spinal fluid is withdrawn to dissolve the crystals of novocain, which are especially adapted for this use, and is then reinjected into the spinal canal, by making four or five efforts; the usual dose being 120 milligrams of novocain. The patient is immediately given $7\frac{1}{2}$ grains of caffein-sodium-benzoate, and allowed to remain in a sitting posture for two or three minutes. Then they are placed in a supine position, heads slightly elevated, and watched closely for a period of fifteen minutes before the operation is begun. It is well to keep the patient talking to stimulate the respiratory center. We have employed this in a series of twelve cases in which hysterectomy, cervical and perineal repair, pelvic abscess, and various pelvic operations were done.

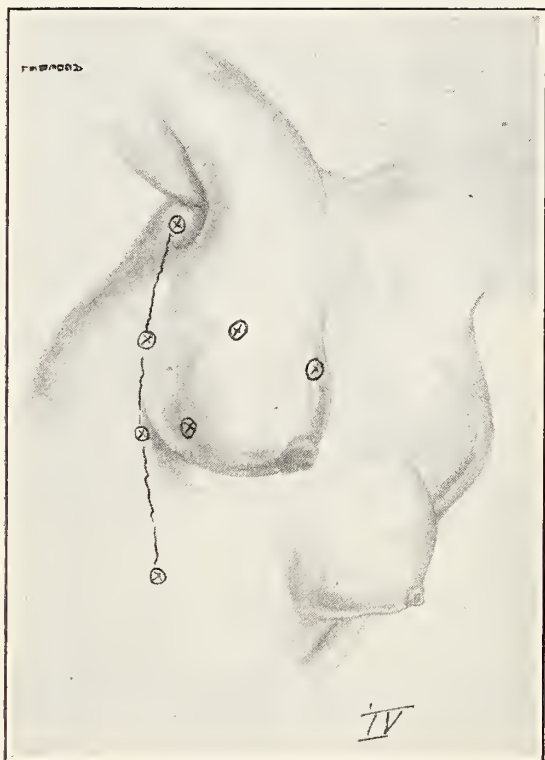
Operative Procedure—Thyroidectomy:

The technique for thyroidectomy under local in our series of seven cases, is as follows: injections are made along the area of the neck where the incision is to be made,

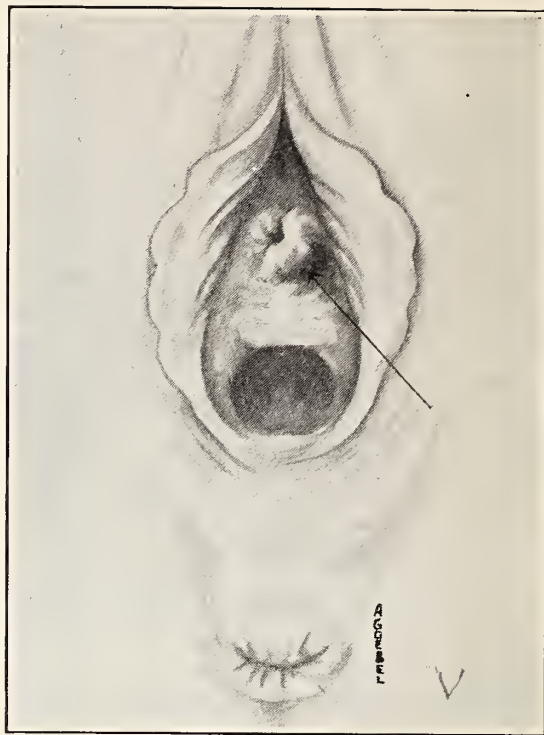
and then one wheal on each side of the midline of the trachea, and through these wheals a large amount of 1 per cent solution of novocain, **without adrenalin**, is injected, the skin is reflected, the muscles are injected, retracted laterally until the gland is exposed, and a direct injection is made into it in a circular manner. (Fig. II.)

Appendectomy:

The appendix can be easily removed under local anaesthesia, in both obese and thin individuals. Wheals are made at each end of the contemplated incision, and on each side about an inch from the center; the nee-



dle is then introduced through these wheals and a large amount of the solution deposited in every direction which makes a diamond shaped area. The skin is incised, muscles retracted laterally, some of the solution is deposited in the preperitoneal space, the peritoneum is opened, the abdominal walls held by retractors, so the large intestines can be grasped by a forcep and pulled forward until the appendix is delivered; then the mesoappendix is injected. A circular injection is made around the base of the appendix, just below the area for the purse string suture. Our series comprise three cases of acute appendicitis. (Fig. III.)

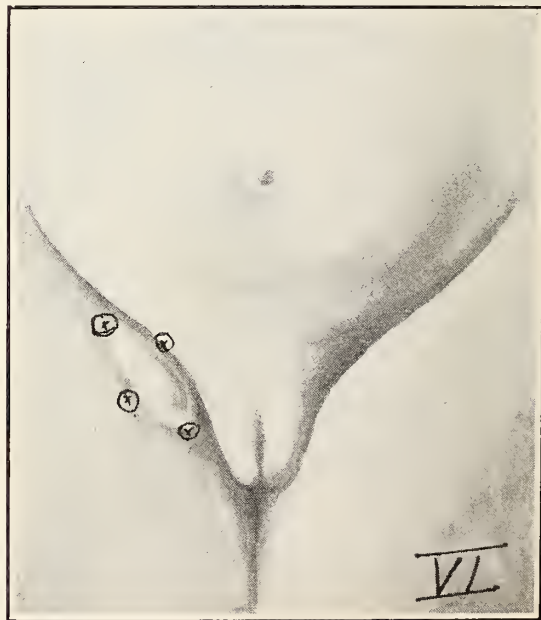


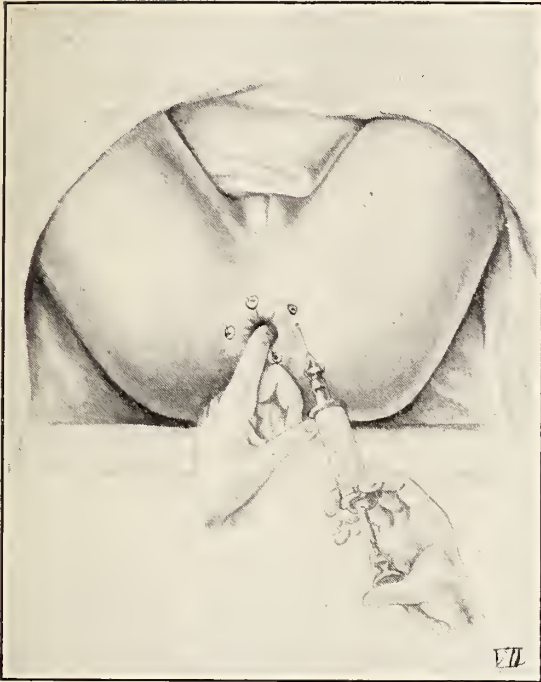
Radical Amputation of the Breast:

Radical amputation of the breast was carried out in one case, by making wheals along the site of the skin incision into the gland, and the infiltration was carried out ahead of the contemplated dissection. The axillary glands, the supra and infra clavicular glands, and the epigastric notch was dissected out for carcinoma. Another case of Lipoma of the breast, was very easily removed. (Fig. IV.)

Urethral Caruncle:

In our series of two urethral caruncles in

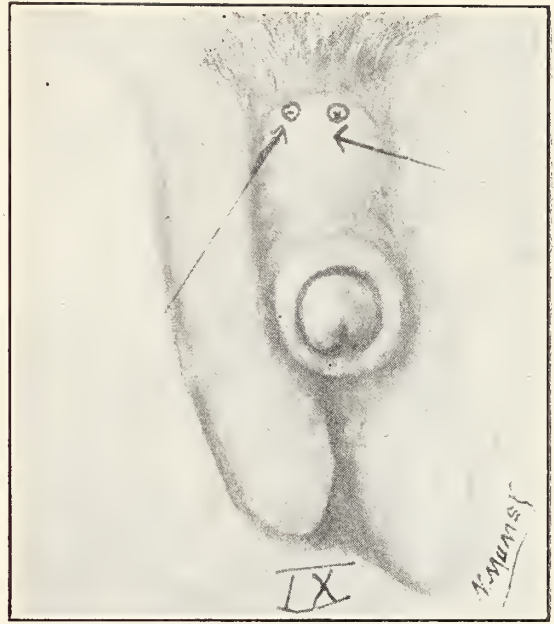
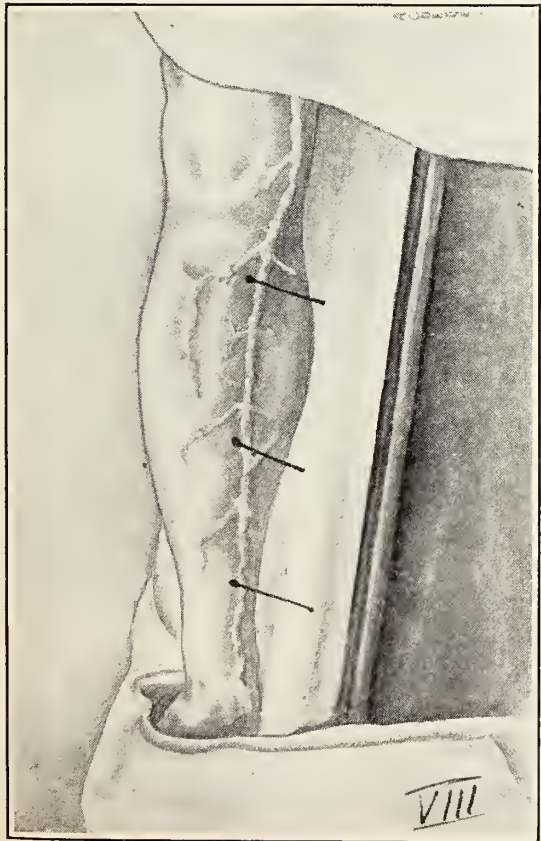




which an injection was made below the tumor, into the urethra, for complete dissection and removal. (Fig. V.)

Cervical Glands of the Neck:

One case of tuberculous glands of the neck were removed by radical dissection. The injection was made around the glands and the deeper structures.



Hernia:

In two hernia, one an incisional, post-operative right rectus, five years' standing in which the patient had marked adhesions. The injections were made around the old scar, the sac dissected, the peritoneum opened, and the closure made in the usual manner. Femoral hernia, in a girl thirteen years of age, was also done. Field block and infiltration was carried out in this case by making the usual wheals and injecting in each direction. (Fig. VI.)

Hemorrhoids:

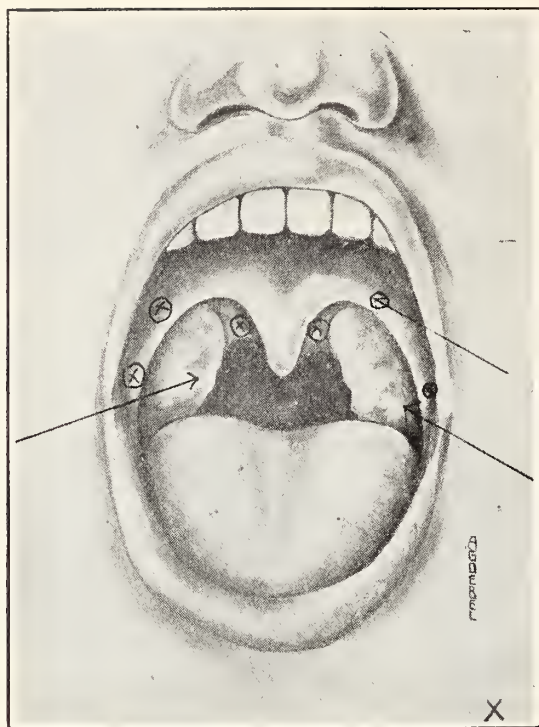
Hemorrhoids comprise two cases in our series, the technique being carried out by making wheals around the anal canal, and then introducing the index finger of the left hand into the anus, where the sphincter could be felt, using a large needle and injecting about 90 cc. of solution through the wheals directly into the sphincter; when the injection is made there is usually complete dilatation, and the operation can be done easily and without pain, using the clamp and cautery. (Fig. VII.)

Varicose Veins:

Two cases of varicose veins, one the Mayo vein stripper was used; injection by making wheals and infiltrating along the course of the vein. The other case, the vein was cut and tied in several places. (Fig. VIII.)

Circumcision:

In two cases of circumcision, one a boy of



three years, and one of six years. A small wheal made at the base of the penis on each side of the midline, and injecting directly into the corpora cavernosa, using about 3 cc. on each side. The same procedure is carried out on the under surface; anaesthesia begins immediately, and usually lasts about two hours. It does not distort the field and does not require infiltration of the mucous membrane. (Fig. IX.)

Tonsillectomy:

Twenty-three cases of tonsillectomy in adults; we carried out the following technique: injections made at the upper, and one at the lower pole of the tonsil along the anterior pillar, the needle is introduced deeply through these preliminary wheals, and the solution deposited back of the tonsil, a large amount is injected directly into it. If the patient is gagging and has a bad throat reflex, a small amount is placed at each side of the uvula. It usually requires about 40 cc. of solution to remove both tonsils. (Fig. X.)

Conclusions:

In concluding this paper, with a resume of operations, we want to leave with you these thoughts and suggestions:

1.—We should always keep in mind that local anaesthesia has definite indications and uses, and these should not be abused nor transgressed.

2.—With increased training and knowledge of local anaesthesia, the time will come when there will only be established certain indications for general anaesthesia, as there are now for local, as is the common experience of today. It does not seem to be reasonable to anaesthetise the entire body, when a local operation is to be done.

3.—We believe there is a definite field for the local anaesthetist, and we are sure that an individual should play a similar role, to that which the general anaesthetist is giving his attention. His services should be in demand by the surgeon who makes only an occasional use of these methods.

4.—Operative shock is reduced to a great extent, and post-operative convalescence is quicker, smoother, and the patient is allowed to have fluids and foods sooner than those who have had a general anaesthetic.

Vein Valves Heretical

Hidden away in the interior of man's veins are indications that his ancestors once walked in a stooping position, according to Dr. C. W. Stiles of the U. S. Public Health Service.

In the veins of human beings, as well as of the lower animals, Dr. Stiles stated, there are numerous little check-valves that relieve the back-pressure of the blood and prevent it from flowing the wrong way. In all cases in animals, these valves are found in veins where the blood commonly flows "uphill" toward the heart, as in the veins of the legs and arms. In animals the blood must flow "uphill" also in the veins that lie beneath the ribs, since the animals carry the trunk of the body horizontally and the ribs therefore hang vertically. But in the veins that run horizontally, notably the great trunk vein that runs along beneath the backbone, no valves are needed to prevent back pressure, and none are found in this position.

In man, however, the trunk is carried vertically, so that the relative positions of the veins are exactly opposite to those in the animals, the rib-veins being horizontal instead of vertical and the great vein of the back being vertical instead of horizontal. Yet the valves in human veins follow the same pattern as do the valves in animal veins. They are found in the rib veins where they are not needed and are absent from the great dorsal vein where they would be really useful. This is understandable on a theory of ancestral survivals in man, Dr. Stiles pointed out, but is completely contrary to a special-creation theory which assumes that the body of man is perfectly adapted for this present mode of life and made without any useless parts or any mistakes.—Science Service.

The ten most injurious insect pests in the United States, as selected by the votes of eleven government entomologists are the boll weevil, Hessian fly, codling moth, corn earworm, mosquito, chinch bug, Colorado potato beetle, grasshoppers, the house fly, and the San Jose scale.

TWENTY-FOURTH MEETING WYOMING STATE MEDICAL SOCIETY

LANDER, WYOMING

July 12, 13, 1926

Registration Headquarters—Noble Hotel

Joint Meetings—High School.

Medical Society Meetings—High School.

Dental Society Meetings—Public Library.

For Hotel Reservations at Lander, write

DR. W. F. SMITH,
Lander, Wyoming

Do it now—don't wait—get your reservation.

Sunday Evening—Public meeting at the Methodist Church. Other churches co-operating. American Society for the Control of Cancer, sponsored by Dr. J. F. Replogle, County Chairman of the American Society for the control of Cancer, presiding.

Address with lantern slides—"Cancer," Dr. Palmer Findlay, Omaha, Nebraska.

PROGRAM

MONDAY, JULY 12, 1926

Morning Session

High School

8:00—Joint Meeting of the Wyoming State Medical Society and the Wyoming State Dental Society. Dr. J. J. Donovan, President Wyoming State Dental Society, presiding.

Address of Welcome—Ed Farlow, Mayor of Lander; L. L. Newton, Newspaper Man, Lander.

Response for the Medical Society—Dr. George P. Johnston, Cheyenne, Wyoming.

Response for the Dental Society—Dr. William Andrew, Cheyenne, Wyoming.

Address—"Co-operation between the Physician and Dentists in the Management of Focal Infections," Dr. Arthur D. Black, Dean of Northwestern Dental School, Chicago, Illinois.

Address—Dr. Arthur T. McCormack, Secretary Kentucky Medical Society, Louisville, Kentucky.

Adjournment of Joint Meeting.

Presidential Address—Dr. C. H. Platz, President of Wyoming State Medical Society, Casper, Wyoming.

Annual Report of the Secretary—Dr. Earl Whedon, Secretary State Medical Society, Sheridan, Wyoming.

Paper—"Some Hospital Problems of the Small Community," Dr. Callen A. Fox, Cheyenne, Wyoming.

AFTERNOON SESSION

1:00—Address—"Fads and Quackery," Dr. Maurice Fishbein, Editor, American Medical Association Journal, Chicago, Illinois.

Paper—"Causes of Recurrent Inguinal Hernia," Dr. A. P. Kimball, Casper, Wyoming.

Paper—"Post Abortive Infection," (Lantern Demonstration), Dr. Palmer Findlay, Omaha, Nebraska.

Paper—"Diagnosis of Dyspepsias," Dr. C. F. Kemper, Editor of Colorado Medicine, Denver, Colorado.

4:00—Meeting of House of Delegates.

Evening Entertainment.

Picnic Lunch at Lost River, about six miles from Lander.

Dance at nine o'clock in the pavilion.

TUESDAY, JULY 13, 1926

Morning Session

9:00—Paper—"A Proper Gastro-Intestinal Examination," Drs. Newcomer and Conyers, Denver, Colorado.

Paper—"Tularemia," Dr. Harris, Basin, Wyoming.

Paper—Dr. Arthur T. McCormack, Secretary Kentucky Medical Society, Louisville, Kentucky.

Paper—"Management of Ocular Emergencies and Complications," Dr. Jas. M. Patton, Omaha, Nebraska.

Paper—"Treatment of Neurosyphilis by Malaria," Dr. Glaister H. Ashley, Denver, Colorado.

Informal Address—By our honorary member, Dr. A. R. Mitchell, Lincoln, Neb.

AFTERNOON SESSION

1:30—Paper—"Skull Fractures, Methods of Diagnosis and Treatment," Dr. C. W. Hopkins, Chief Surgeon, Chicago & Northwestern R. R., Chicago, Illinois.

Paper—"Goiter from the Standpoint of the General Practitioner," Dr. C. A. Roeder, Omaha, Nebraska.

Paper—"Goiter," Dr. E. R. Schunk, Sheridan, Wyoming.

Report—"The Dallas Meeting of the American Medical Association," Dr. George P. Johnston, Delegate, Cheyenne, Wyoming.

Paper—"About the Latest Developments for Treatment of Malignant Tumors by Roentgen Rays," Dr. Fred Gassman, Worland, Wyoming.

EVENING

Annual Banquet, Dr. T. J. Drew, Casper, Wyoming, Toastmaster.

ENTERTAINMENT FOR LADIES

9:30—Monday morning, Business Meeting of the Auxiliary.

2:30—Monday afternoon, Reception and Tea at the Home of Dr. L. C. Hunt and wife.

9:00—Tuesday morning, Auto Trip over the Indian Reservation and Bathing Party.

Tuesday afternoon—Bridge Luncheon at home of Dr. J. F. Replogle and wife.

OFFICERS

President_____Dr. C. H. Platz, Casper, Wyo.
Vice-President_____Dr. I. W. Blake, (deceased)
Second Vice-Pres.____Dr. F. A. Mills, Powell, Wyo.
Third Vice-Pres.____Dr. J. L. Linn, Lander, Wyo.
Secretary_____Dr. Earl Whedon, Sheridan, Wyo.
Treasurer_____Dr. Evald Olson, Lovell, Wyo.

COMMITTEES

Local Committee on Arrangements

Dr. W. F. Smith Dr. L. C. Hunt Dr. J. L. Linn

Program

Dr. Earl Whedon, Sec.

Dr. E. M. Turner Dr. J. L. Linn

Medical Defense

Dr. Earl Whedon, Sec.

Dr. A. B. Hamilton Dr. E. S. Lauzer

Councilors

Dr. George L. Strader Dr. George P. Johnston

Dr. V. J. Keating

Delegate to American Medical Association

Dr. George P. Johnston

Editor for Wyoming's Part of "Colorado

Medicine"

Dr. Earl Whedon

Auditing Committee

Dr. W. W. Yates Dr. W. A. Steffen

Dr. V. J. Keating

SYSTOLE

Speech is the index of the mind.—Seneca.

Man is the merriest species of the creation; all above or below him are serious.—Addison.

Men are tattooed with their special beliefs like so many South Sea Islanders; but a real human heart with divine love in it beats with the same glow under all the patterns of all earth's thousand tribes.—O. W. Holmes.

Die when I may, I want it said of me by those who know me best, that I always plucked a thistle and planted a flower where I thought a flower would grow.—Abraham Lincoln.

God gave man an upright countenance to survey the heavens, and to look upward to the stars.—Ovid.

Despise not any man, and do not spurn anything; for there is no man that has not his hour, nor is there anything that has not its place.—Rabbi Ben Azai.

Life is a tender thing and is easily molested. There is always something that goes amiss. Vain vexations—vain sometimes, but always vexations. The smallest and slightest impediments are the most piercing; and as little letters most tire the eyes, so do little affairs most disturb us.—Montaigne.

Banish the future; live only for the hour and its allotted work. Think not of the amount to be accomplished, the difficulties to be overcome, but set earnestly at the little task at your elbow, letting that be sufficient for the day; for surely our plain duty is "not to see what lies dimly at a distance, but to do what lies clearly at hand."—Osler.

He is an eloquent man who can treat humble subjects with delicacy, lofty things impressively and moderate things temperately.—Cicero.

DIASTOLE

Two sophisticated orderlies of a Denver hospital were impatiently waiting to complete their usual labors after the completion of an operation which for some reason had been delayed. One was overheard to say to the other, "Well, when Will and Charlie get through in there we'll go to dinner." About half an hour later he struck the pose of a surgeon and remarked, "I'll get this appendix out if it takes all day."

A nurse, in her usual accurate style of recording clinical facts, had written, "Patient a little horse today." The attending physician commented that perhaps he had a little "colt."

Teacher: "Jennie, do you know what a panther is?"

Pupil: "Yeth mam, a panther ith a man who makes panths."

It's a wise child that leaves the room to laugh when the old man mashes his thumb.

Charity worker: "I am soliciting for the poor. What do you do with your cast-off clothing?"

Mr. Hardup: "I hang them up carefully and go to bed, then next morning I put them on again and go to work."

Some go to the movies to rest their feet, others to practice reading aloud.

In alcoholic ward: First patient: "When I came in here I saw snakes crawling all over me."

Second patient: "You ain't well yet neither, I see one now."

A wild woman is one that hasn't any place to go.

History teacher: "In which battle was King Adolphus slain?"

Pupil: "The last one."

NEWS NOTES

Dr. Jackson Again Honored

Dr. Edward Jackson has again been honored by two leading institutions of America. At the recent meeting of the American Ophthalmological Society at Hot Springs, Virginia, he was awarded the society's medal for distinguished scientific work for Ophthalmology. A few days later he received the honorary degree of Doctor of Science at the University of Pennsylvania.

Dr. Charles W. Thompson of Woodcroft Hospital, Pueblo, attended the joint meeting of the National Association for the Study of Epilepsy, and the American Psychiatric Association, in New York, June 8-11.

Dr. Finnoff recently attended the annual meeting of the American Ophthalmological Society at Hot Springs, Virginia.

Dr. C. E. Morse has just returned from St. Louis where he has taken a month's course in pediatrics given by Dr. Marriott. He reports that the course was excellent and thirty-five physicians representing eighteen different states took the course. Belgium and Mexico were also represented.

Dr. David Strickler has again been honored by re-election to the National Board of Medical Examiners.

Dr. C. E. Eakins of Brush is now in Europe attending clinics. Incidentally he is enjoying a tour of the continent.

Dr. Elsie Seelye Pratt has recently returned from California where she has spent several months in recreation and study.

Dr. C. E. Stevenson of Sheridan left the middle of April for post graduate work in St. Luke's, Chicago. The Doctor returned driving the latest model Cadillac. Some car, boys.

Dr. and Mrs. John C. Gorsuch of Denver are spending their vacation in and about New York and Boston. They will return to Denver July 1st.

Dr. N. J. Nolan was married to Miss Stella Nichols and they are now on their honeymoon. Their trip includes New York, Niagara Falls and other eastern points.

Dr. W. O. McDermott was married to Miss Patricia Sullivan in May. Their honeymoon was spent at the Broadmoor Hotel, Colorado Springs, Colorado.

Dr. Allan McLellan spent a few days in Chicago where he attended the graduation exercises of his brother who graduated from Northwestern Medical.

Dr. Luther Mitchell, of Edgerton, Wyo., died of empyemia, following a case of pneumonia.

Anesthetists Meet

The annual meeting of the Mid-Western Association of Anesthetists will be held October 11-14, 1926, in Kansas City, Mo., at the same time as the Clinic Week there. Headquarters Baltimore Hotel.

An interesting and attractive program is in the process of making. Any physician or dentist desiring to read a paper should send the title of his paper to the secretary very soon.

Leprosy was looked upon by the ancient Hindus as man's inevitable punishment for killing a serpent.

MEDICAL SOCIETIES

ARKANSAS VALLEY

The regular midsummer meeting of The Arkansas Valley Medical Association will be held in the new Golf and Country Club at Pueblo, Saturday, July 24th, 1926. The semi-annual meetings of this association are events of more than ordinary importance and are attracting greater attendance each time. Last summer the meeting was held at the Byrd Colony, near Mount Princeton Hot Springs, and was a most valuable as well as enjoyable affair.

Those in charge of the meeting this year have promise of an "all star program," the several speakers scheduled being men of nation-wide reputation and acquaintance. Perhaps the most interesting and entertaining will be Dr. Ralph Mendelson, Chief of the Government Medical Staff in the kingdom of Siam, and who, by the way, attended the late king in his final illness. Dr. Mendelson is a graduate of the La Junta High School and is in this country on an extended visit to his parents who reside in Rocky Ford.

The Pueblo Golf and Country Club has just completed a grass course and the construction and equipment of a really superb club house, all of which will be open to the registrants at the meeting. A golf tournament will probably be an early morning attraction. All ye medicos who are fond of "swatting the pill" be sure to come prepared for the occasion.

Special emphasis is placed upon the invitation to the wives, daughters and sweethearts because provision is being made for their entertainment. Pueblo is already noted for its hospitality and the Pueblo County Medical Society as hosts to the Arkansas Valley Association are determined that the reputation shall be maintained.

The program as tentatively arranged is as follows:

- 8:00 a. m. Golf Tournament.
- 10:00 a. m. Registration and get acquainted.
- 11:00 a. m. Call to order of regular meeting.
- Noon. Lunch hour.
- 1:30 p. m. Continue scientific papers.
- 7:00 p. m. Dinner dance.

DELTA COUNTY

The meeting of The Delta County Medical Society held in Hotchkiss on last Thursday, June 3. Dinner at the Central Restaurant.

Present: Drs. Hick, president; J. H. Burgin, Lewis, Meyers, Day, Erich, McConnell, Cleland, McArthur, Bast, Smith, Hazelett, and Copeland.

Minutes of the past meeting read and adopted.

Reading of communications on which no definite action was taken.

Scientific papers of the evening: Thyroid Gland, Dr. Hick; Parathyroid by Dr. Smith. Time and place of the next meeting not decided.

The Society will have Dr. Clough T. Burnett, of Denver, as a speaker of the evening. The meeting to be arranged to suit his convenience.

SECRETARY.

THE OTERO AND PROWERS COUNTIES MEDICAL SOCIETIES

A joint meeting of the two societies met May 11, 1926, at the United States Veterans' Hospital No. 60, Fort Lyon, Colorado. From "soup to nuts" only indicates the range of the refreshments, but in no way expresses the sumptuousness of the feast. After dinner the following program was enjoyed:

7:00 P. M.—Demonstration: Physio - Therapy
Department—Miss Adele MacKenzie
Acting Chief, P. T.

7:30 P. M.—"Vincent's Angina" _____
_____ R. M. Fulwider, M.D.
"The Vegetative Nervous System" _____
_____ A. J. Campbell, M.D.
"Problems of Diagnosis in the U. S.
Veterans' Bureau" (with lantern
slide demonstration) _____
_____ R. C. Cook, M.D.
"Demonstration": Pathological
Specimens—R. M. Fulwider, M.D.

Sheridan County Medical Meeting

The June meeting of the Sheridan County Medical Society was held in the offices of Dr. V. J. Keating, Wednesday, June 9.

Dr. W. A. Steffen, Dr. V. J. Keating were elected delegates to the State Medical meeting.

Drs. R. E. Crane, E. R. Schunk, C. E. Stevenson, T. E. Marshall, and J. G. Stewart were elected alternates.

Dr. S. W. Johnson gave a most interesting talk on Rocky Mountain Spotted Fever. The entire evening was spent in a free discussion of this disease, its prevention and treatment.

Dr. Earl Whedon presented correspondence with the Rockefeller Research Laboratories, dictated by Hideyo Noguchi, and Dr. R. R. Parker of the U. S. Public Health Service. Dr. Whedon stated that he had received from the Rockefeller Institute a small supply of "Immune Serum," obtained from hyperimmunized rabbits, which they believe to be of value in preventing Rocky Mountain Spotted Fever if injected soon after the bite by an infected tick. Dr. Whedon said that he would supply some of this serum to any physician wishing to use it.

Meeting adjourned to usual dutch lunch counter.

COLORADO OPHTHALMOLOGICAL SOCIETY

The meeting of the Colorado Ophthalmological Society was held Saturday, April 10, 1926, in the assembly hall of the Medical Society of the City and County of Denver, Dr. George F. Libby, presiding.

Dr. W. A. Sedwick showed Mrs. H. R., nurse, 33 years of age. The left fundus showed a long white streak resembling a rupture of the choroid, extending from well up and slightly temporalward down and thru the disc and below it off to the periphery and ended in a rather large patch of old choroiditis. The right fundus was examined at this time and revealed a more striking picture than the left; a large white streak was seen running from above downward just beside the disc, and it also ended in a patch of choroiditis. Just below the disc was a branch running upward and nasally. Vision with correcting lens was O. D. 10/13 O. S. 15/20. A probable diagnosis of retinitis proliferans was made. Discussed by C. E. Walker, Wm. H. Crisp, Edward Jackson and Geo. F. Libby.

Dr. Wm. C. Bane and Dr. Wm. M. Bane exhibited a case of iritis in Mr. L. R., age 54, who was first seen April 8th, 1926, complaining of soreness of the right eye of four days' duration. There was no secretion. Following an attack of pneumonia, 17 years ago and of influenza five years ago the right eye became painful and inflamed. On examination, there was noted a superficial scar in the upper temporal quadrant, the lower nasal quadrant was markedly infiltrated. There was moderate congestion of the marginal vessels and the pupil dilated fully with homatropin. The teeth were in bad condition and on April 9th, two of them were pulled. The appearance of the eye on this date was unchanged but the tension was found to be 33 m. Hg. and eserine was instilled. On April 10th the tension was the same and pilocarpin 1 per cent t. i. d. was ordered. Discussed by E. R. Nepper, Wm. H. Crisp and Wm. M. Bane.

Dr. Wm. H. Crisp reported a case of partial paralysis of accommodation and of pupillary dilatation after mumps. The patient was a girl of nine years. The vision with correction was found to be right and left 20/16, but without correction the vision of the left eye was only 20/24. The right pupil contracted to light, but the left did not. The near point with the glasses was right 4 D., left 2 D., altho at a previous examination 10 D. of accommodation had been recorded. The patient was out for the first time after a very severe attack of mumps.

After six days, the near point with the glasses was 5 D. or so.

Dr. Wm. H. Crisp also reported a case of unilateral convergent strabismus definitely noticeable before the age of five months. The child, plump, active, and seemingly healthy, had lost one pound in two months. At the age of seven months each eye had 6 D. of hyperopia with approximately 1 D. of hyperopic astigmatism with the rule.

Dr. Edward Jackson and Dr. Wm. C. Finnoff reported a case of sympathetic ophthalmitis in a boy, age 12, who was struck in the left eye on February 1, 1926. At the end of two weeks during which time the eye was inflamed and painful, the boy was taken to an oculist who found three cilia deposited in the anterior chamber of the left eye. He made a keratome incision above and removed two of them. The patient returned to his home which was in a remote rural section.

Fifty-one days from the date of the injury, he came to Denver and a diagnosis of sympathetic disease was made. The vision O. D. and O. S. was .02. Because of the advanced and apparently rather equal involvement of the both eyes it was decided to delay enucleation of the exciting eye until it could be definitely determined that ultimately it might not be the better seeing eye. Therefore, the boy was sent to the hospital, the cilia removed from the left eye without difficulty, and intensive treatment instituted.

After ten days' observation, the left eye was enucleated. The vision on this day was O. S. 0.03 O. D. 0.4. Up to the present time the vision of the right eye has held. The iris vessels remain moderately injected, the vitreous is hazy and no fundus detail may be seen.

DONALD O'ROURKE,
Secretary.

The number of first admissions to hospitals for mental disease in the United States annually is practically equal to the number of persons graduated from colleges and universities in a year.

COLORADO GENERAL HOSPITAL

The one outstanding day for the past month was the twelfth when National Hospital Day was observed. About two hundred visitors were received and conducted through the various parts of the institution. In the afternoon lectures and demonstrations were given on the treatment of malignant growths by X-ray, and also on the value of periodic health examinations. Those in attendance displayed much interest in the day's program, and also in the examination of the hospital units. Those in charge felt repaid for their efforts, and feel that such opportunities afford the lay public a chance to become better acquainted with its hospitals.

Another day toward which all in the institution are looking, is June tenth, when the Physiotherapy Department will be opened. This has been equipped second to none in this part of the country, the installation at Fitzsimons Hospital the only one to be on a par. The department is to be in charge of a competent graduate and will offer care to patients of the various services. When combined with the existing X-ray Department practically any type of a case can be treated. The various types of light rays, diathermy, high frequency, light baths, hydrotherapy and massage are a few of the kinds of treatment now available to patients.

For the month of May the superintendent's office has given out the following figures. These are on a par with the average for previous months and gratifying to consider since the seasonal fluctuation which usually occurs at this time of year has not materialized from the standpoint of this hospital.

Patients in hospital May 1, 1926.....	91
Patients admitted during the month.....	147
(Newborn included in above).....	14
Patients discharged during May.....	153
Patients dying in the hospital.....	7
Autopsies	5
Patients in the hospital June 1.....	78
Average number of hospital patients daily.....	93.4
Number of counties represented.....	22

During May the Out-Patient's Department cared for 2,870 patients of which 399 came for the first time. The daily average of attendance was 110 portioned to the various services with Medicine, Eye, Ear, Nose and Throat and Laboratory having the greatest numbers.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

This institution almost always partakes and enters into the activities of the adjoining institution, Colorado General Hospital, so while the National Hospital Day exercises centered more around the latter place the former also entertained.

One factor which stands out prominently in this institution is the high percentage of autopsies obtained in the past. This month is 100 per cent. Knowledge that has been gained from these autopsies is valuable for the future as all who have attended well conducted hospitals know.

For May the activities are given by these figures obtained from the director's office:

Patients in the hospital May 1.....	55
Patients admitted during the month.....	36
Patients discharged during the month.....	45

Patients dying in the institution.....	3
Autopsies	3
Patients in the hospital June 1.....	43
Counties represented	13

During this month the Psychopathic Out-patient's Department has cared for 240 patients in the clinic, 54 of whom are new cases, almost equally divided between adults and children. 96 patients were seen at their homes and 135 additional visits were made in the interest of patients. In addition nearly two hundred cases were studied on the traveling clinics. These clinics have been the means of bringing proper attention and the necessary treatment to many mental cases which otherwise might not receive the aid to restore them to usefulness.

E. R. MUGRAGE.

NATIONAL BOARD OF EXAMINERS

Reciprocity between the United States and Canada in permitting qualified physicians to practice medicine within each other's borders is being advocated by medical interests in the two countries, it was disclosed today by Admiral E. R. Stitt, Surgeon General of the United States Navy, who made the announcement as President of the National Board of Medical Examiners, a position to which he has just been elected.

Admiral Stitt said that satisfactory progress was being made toward reciprocal recognition of certificates between the Medical Council of Canada and the National Board in this country. An amendment to the Medical Practice Act of Canada will be necessary before such an arrangement can be consummated.

Announcement was made that four new states of the United States and one territory have been added to the list of states accepting the National Board certificate for medical licensure in lieu of their own examinations, making a total of thirty-three states and two territories and the Panama Canal Zone. The newest states are Connecticut, South Dakota, Utah and Nevada, and the territory of Hawaii.

"Evidence accumulates," said Admiral Stitt, "of the increasing popularity of the National Board's examinations, and of the growing confidence in the value of its work in helping to elevate and stabilize medical licensure, as well as aiding in maintaining high standards of medical education."

The next examinations in part I and part II will be held in thirty-five medical centers and three army reserve officers' training camps, June 21 to 23, and in part III in ten centers, June 29 and 30 and July 1 and 2. A total of about 500 will take the examination in part I and 300 in part II.

Admiral Stitt announced the election of two new members of the National Board—Dr. Otto Folin, Professor of Biological Chemistry at the Medical School at Harvard, Boston, Massachusetts, and Dr. Louis B. Wilson, Director of the Mayo Foundation, Rochester, Minnesota.

Dr. A. S. Begg, Dean of the Medical School of Boston University, has been elected to succeed Dr. E. C. Ecyshymer, deceased, formerly Dean of the University of Illinois Medical School.

J. S. Rodman, of Philadelphia, is secretary for the ensuing year, and Everett S. Elwood, of Philadelphia, managing director and treasurer.

The intensity of the light reaching the earth from all the stars is equal to that of an ordinary candle power lamp at 47 yards distance.

BOOK REVIEWS

Gould and Pyle's Pocket Cyclopedia of Medicine and Surgery. Third Edition. Revised, Enlarged and edited by R. J. E. Scott, M.A., B.C.L., M.D. New York, Philadelphia. P. Blackiston's Son & Company, 1012 Walnut Street.

A small pocket sized flexible book of 922 pages and numerous charts and illustrations. It is based on the fourth edition of Gould and Pyle's Cyclopedia of Practical Medicine and Surgery. This book contains a mass of information useful in the practice of medicine and surgery arranged in alphabetical manner and devotes as much space to each subject consistent with the purposes of the volume. Considerable useful information is thus made available in a compact, concise, convenient form. A number of conveniently arranged charts have been included, among which may be mentioned the Physician's Dose Table planned in accordance with the new United States Pharmacopoeia X. This chart presents in a compact and readily accessible manner the apothecary and metric dosage of most of the commonly employed remedies, together with their solubility and incompatibilities. HARRY GAUSS.

An Introduction to Objective Psychopathology.

By G. V. Hamilton, M.D., Director of Psychobiological Research, Bureau of Social Hygiene, Inc., New York City, N. Y., with Foreword by Robert M. Yerkes, Ph.D., L.L.D. Professor of Psychology, Yale University, St. Louis. The C. V. Mosby Company. 1925. Price, \$5.00.

This interesting book might almost be called "Psycho-analysis made easy". The author brings the hidden complexes of his patients to the surface without the use of those time-consuming methods of free association, word association or dream analysis. He says, "One rarely encounters a patient, who is unable to disclose by ordinary processes of recall ample material for an explanation of her nervousness".

The book is the fruit of several years' work in neuropsychiatry, comparative psychology and psychopathology. The author conceived the idea that the study of nervousness could be reduced to a scientific basis. He says that objective psychopathology is "less speculative than psychoanalysis and other forms of psychopathology which deal in terms of unconscious mental activities". Objective psychopathology is "a branch of medicine which employs the method of natural science in seeking to explain and deal practically with nervousness without departing from methods which have given us chemistry and astronomy instead of alchemy and astrology." "It occurred to me that although the abnormal mental responses of nervous patients cannot be dealt with as physical things, the stimulations which evoke them and the responsive properties (reactive tendencies) of the organism, which determine the specific nature of such responses may profitably be dealt with as physical, objectively measurable things. The book consists of a detailed report of 200 cases of psychoneurosis or nervousness, and several chapters explaining the author's views and theories concerning them.

One hundred and forty-five of these cases were diagnosed as "persistent, nonadjustive, affective reaction to the difficulties and problems of life". Some of the problems and difficulties were as follows: Baffling physical discomforts and disabilities, baffling effort to satisfy major cravings,

baffling impairment of advantage both by personal and impersonal agencies, baffling economic difficulties; indirect reaction to sexual urges, direct maladjustive reaction to husbands' infidelity, etc.

A nonadjustive, affective reaction is one in which the patient, instead of facing a situation and thinking out a method of meeting it, becomes emotional and disturbed about it, but to no purpose.

The headings of some of the chapters are:

The Foundations of Psychopathology; Neural Morphology, Neural Physiology, Endocrinology; Comparative Studies of Reactions to Baffling Disadvantages; Habit-Formation; The Relation of Inhibition of Responsiveness to Indirect Responsiveness; Unsatisfied Major Cravings; Reactions to Inferiority; Sexual Behavior.

This book should be of interest and value to men who are studying nervous conditions. It represents original work and is well written.

Recovery Record. For Use in Tuberculosis. By Gerald B. Webb, M.D., Consulting Physician, Cragmor, Glockner and Sunnyside Sanatoria, and Charles T. Ryder, M.D., Cragmore and Glockner Sanatoria. Second Edition, Revised. Paul B. Hoeber, Inc., New York. Price, \$2.00.

The popularity of this manual, both among physicians and laymen, is evidenced by its second edition within a short time after its first appearance. The present edition is revised and divided into four chapters: I—The Record of Recovery; II—The Technique of Recovery; III—The Hygiene of Recovery; IV—Accidents and Obstacles. In the seventy-nine pages of reading matter, the authors emphasize in terse language and elegant style the essential principles of a carefully regulated and hygienic life for those who are engaged in an effort to recover from tuberculosis. The whys and wherefores are pointed out explicitly and convincingly. The hopeful attitude, which the authors take toward the possible recovery from this disease, placing, as they do, the responsibility for the end-results to a great extent upon the patient, and the emphatic though not intimidating manner in which they stress the dangers that might result from compromises or sheer recklessness, constitute the chief features of the Recovery Record. "It's all meat", to use the vernacular; indeed, there is not a sentence or a phrase that appears superfluous. It contains everything which a patient ought to know, and which is unfortunately not always imparted to him by the attending physician. The instructions are specific and at the same time comforting and cheering. When one is through reading this book, he feels that he is better qualified to lighten the burdens of his patients in their difficult task to become well. The high degree of optimism with which a few patients become imbued after this almanac was placed in their hands, encouraged this writer to urge every patient to read this book.

Appended to the book are chart sheets upon which patients are to record the temperature, pulse, respiration, and weight, and blanks for memoranda, sufficient to last two years. On the top and bottom of each sheet appear well selected quotations, which serve as an added stimulus to the patient to "carry on".

This unique manual should find a place in the library of every physician, and every physician should deem it his duty to at least recommend to his tuberculosis patients this book as an invaluable aid to their successful recovery.

I. D. BRONFIN.

Sixty Years in Medical Harness or The Story of a Long Medical Life. 1865-1925. By Charles Beneulyn Johnson, M.D. Author of *Muskets and Medicine*, *Medicine in Champaign County, Illinois, in the Fifties*, etc. New York, Medical Life Press. 1926. Price, \$3.00.

One can in a short space review only a few salient features. So many disconnected things and subjects are treated that it is impossible to do otherwise.

This book is a miscellaneous collection of papers and dissertations by a physician of native ability and considerable literary merit. It is the story of a country doctor on the prairies and in the interior towns of Illinois from 1865 to 1925. One unconsciously, in reading it, reverts to the beautiful picture of the family doctor immortalized by Ian MacLearen in the *Bonnie Briar Bush*, and James Whitcomb Riley, a friend of the author in review.

While the book is of chief interest to the medical profession and people of Illinois, it contains some chapters of general interest to the profession. One is devoted to a review of the pandemic of La Grippe of 1889, and its cyclical visitations since that date under different names but, in popular phraseology, the "flu" stands unchallenged and unconquered though it has existed for several hundred years and affects the whole world simultaneously.

The most interesting chapter in the book is "Medicine in 1868," a time when the medical mind visualized the dawn of a new era in medicine—the pre-antiseptic and scientific. It was at this time that Lister and Pasteur were experimenting as to the cause of fermentation, which in a few years of experimental investigation established the germ theory of infection.

The author undoubtedly knew personally every prominent physician and surgeon of Illinois and was quite well acquainted with the conspicuous names, character and works of medical men in this country and abroad. He was a graduate of the University of Michigan and his brief sketch of Corydon L. Ford as the best teacher of anatomy this country had produced will not, probably, be disputed by anyone who ever heard this wonderful instructor lecture.

Dr. Johnson was a member of the first medical society organized in Illinois, the Aesculapian Society of the Wabash. He was the intimate friend of Dr. James Newton Matthews, the "Singing Doctor" of the Wabash, and publishes in this volume a poetic gem by him, read at one of their meetings, in five verses. The theme "They had no poet and so they died."

The chapter on the sanatorium treatment of tuberculosis is interesting and modern. A chapter on the evils of alcoholism is strong enough to please the most ardent dry advocate.

His pride in his own medical library is commendable, for it is undoubtedly a good one and indicates that he is a reader of good books as well as a busy practitioner.

He writes interestingly of the medical amphitheaters of Chicago and St. Louis which he occasionally visited with pleasure and profit.

There are some engravings of noted physicians which give added interest to the volume.

To review the book brings anew to the mind, the evolution in medicine and the momentous transition from 1868 to 1925, unqualified, in achievement and splendor, by any epoch in the past history of medicine from Hippocrates to the present time.

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Physical Chemistry in Biology and Medicine. By J. F. McClendon, Ph.D., Professor of Physiologic Chemistry, University of Minnesota Medical School, and Grace Medes, Ph.D., Assistant Professor of Physiologic Chemistry, University of Minnesota Medical School. Octavo of 425 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$4 50 net.

This book deals with the applications of physical chemistry to problems in biology and medicine and is written primarily for the research worker. The subjects discussed are only taken up briefly with the idea of giving the reader a general notion of what has been done in that particular field. At the end of each chapter an extensive bibliography is given. This constitutes in the mind of the reviewer the chief value of the book. The material is not extensive enough for the advanced worker in research and not elementary enough for the beginner. The author only gives six pages to the colloid particle. The chapter on hydrogen ions is very good and quite complete as far as principles are concerned. The book should find its place in every library primarily for the bibliographies that have been collected.

R. G. GUSTAVSON.

The Art and Practice of Medical Writing. By George H. Simmons, M.D., Editor and General Manager Emeritus, American Medical Association and Morris Fishbein, M.D., Editor, The Journal of the American Medical Association. Chicago. Press of American Medical Association, 535 North Dearborn Street, Chicago. 1925.

This little book is full of information and practical suggestions to medical authors. It would serve as a helpful guide in the preparation of an acceptable article for publication. The modern paper prepared for printing has a certain form considered proper. The book is an excellent little medical grammar which may be used as a standard as it gives directions regarding how to prepare and arrange an article for publication. It lends hints on what to write, the style one should endeavor to employ together with the ideal construction of the manuscript, pointing out the importance of selecting a title which designates clearly the contents of the article. There is a long list of words, commonly employed in medical writing which have a preferred usage. Besides the proper use of abbreviations and the capitalization of certain words and phrases peculiar to medical literature are clearly illustrated. Good bibliographic references, which add much to the value of an article, should contain certain information regarding the book or article in the periodical referred to. The way to give this information is nicely illustrated.

WILFORD W. BAKBER.

Radioactive Brass

Common brass is radioactive matter, according to Dr. Robert A. Millikan, director of the Norman Bridge Laboratory of Physics of the California Institute of Technology, in a statement following recent scientific experiments conducted in brass apparatus placed several fathoms deep in Alpine lake waters. This conclusion comes as a by-product of the epochal discoveries of the activities of high-frequency cosmic rays. Incidentally, Dr. Millikan suspects that all matter is capable of spontaneous breakdown, or radioactive decomposition, though evidence in most cases is naturally lacking.—Science Service.

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The following formula is submitted as a means of preparing suitable nourishment in intestinal disturbances of infants usually referred to as summer diarrhea:

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This mixture contains proteins, carbohydrates and mineral salts in a form readily digestible and available for immediate assimilation.

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TUNING IN

Reputation for Health

Because the Board of Health of the city of Kingston published its proceedings and the report of its laboratory, it will soon have as residents a retired New York City merchant and his family, according to the Kingston Freeman for December 7. Passing through the city on his way to Cooperstown, this man happened to see the health report in the local paper and was so impressed with health conditions in the city and the efficiency in health work indicated by the published report, that he has purchased a home overlooking the Hudson river, and intends to make it his future abode. Many communities apparently overlook the advertising value of efficient protection of public health.

"What Are a Few Measles?"

The New York State Department of Health would like to answer the editor's question, "What are a few measles," as follows:

The Dangerous Age to Have Measles

It is among children under three years of age that most of the deaths occur and among whom the disease is most likely to be fatal. This is shown in the following table, which gives for various age groups the percentage of cases re-

	Per cent.	4 years	0.36
Under 1 year	8.62	5 to 9 years	0.16
1 year	5.05	10 to 14 years	0.14
2 years	1.51	15 to 19 years	0.31
3 years	0.71	20 years and over	0.99

Synthetic Cat

A way to make synthetic civet has been discovered, and unhappy cat farmers in far off Abyssinia are finding their profitable business slipping away from them, perhaps forever.

Civet, which is a secretion contained in the pouch of the civet cat, is an important material in perfume manufacturers. Civet, musk, and ambergris, all from the animal world, are heavy substances which form the basis with which fragrant oils and delicate flower essences are mixed.

Report of the violent disturbance to the African cat market, which comes from Vice Consul J. Loder Park, of Aden, Arabia, says that in the past Abyssinia has practically enjoyed a monopoly on civet. The cat farmers could name their own price, and get it. An Abyssinian law limited production by forbidding capture of wild civet cats except by special permit.—Science Service.

Oriental Plants

Thousands of specimens of rare plants from China are now being packed at the U. S. National Herbarium, for shipment to six foreign museums as well as to two of the great herbariums in the United States. The bulk of the collection was brought home over a year ago by Dr. Joseph F. Rock, noted explorer-botanist, from the almost unknown mountains of southwestern China, and has kept a corps of plant experts busy ever since, arranging and classifying the material. In all there are some 60,000 plants, representing about 12,000 species.—Science Service.

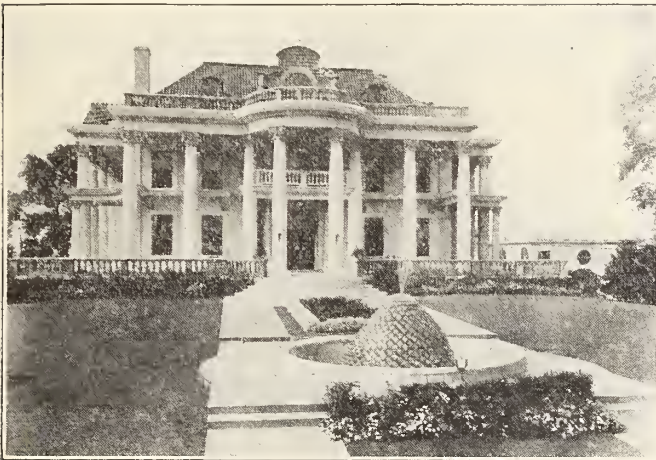
Reasonable

The Sorbonne, oldest of European universities, now permits student dances but forbids jazz.—The Dearborn Independent.



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TUNING IN

A Practical Community Program for Dealing With the Feeble-Minded

Originally suggested by Fernald and since endorsed by other authorities, the following state program represents, in the opinion of most psychiatrists, the most practical working plan yet devised for dealing with mental defectives:

Identification, by means of routine mental examinations of school children three years or more retarded in their grades and by other devices.

Registration, at some central bureau for purposes of ascertaining size of problem.

Education, in special classes of public schools, and in institutional schools.

Training, in simple trades or domestic duties during institutional residence.

Supervision, by trained workers both in jobs and in homes.

Segregation, permanently only for defective delinquents and for the lower, helpless group of feeble-minded.—George K. Pratt, Mental Hygiene.

Body Temperature

A thermometer stuck in the mouth is not an accurate index of the average temperature of the body, experiments at the University of Pennsylvania have shown. By taking the temperature deep in his own body and in those of a dozen assistants, Prof. H. C. Bazett has found that the muscles of the arms and thighs under normal room conditions are 2 or 3 degrees below the temperatures of the mouth. This means that the average body temperature is not what is usually inferred, since many portions are colder than the mouth reading. When feeling cold, as after a cold bath, for example, the muscles may be 6 or more degrees colder than the mouth temperature.—Science Service.

Ten Thousand Needless Deaths

Ten thousand lives are sacrificed needlessly from diphtheria in the United States each year. Ninety per cent of these deaths occur in children under five years of age. Science has now given us means whereby complete protection against this disease may be accomplished by the administration of toxin-antitoxin. The vast majority of people so immunized will never contract diphtheria even though exposed to the disease.—Matthias Nicoll, Jr., M.D.

Old Russia

Habitation by prehistoric people as far back as 100,000 years ago of a site on the Volga River near Samara, in Russia, is revealed by the researches of Miss Vera P. Misinova and described by her in a report received by Dr. George Grant MacCurdy, professor of anthropology at Yale University and director of the American School for Prehistoric Research.—Science Service.

Sororities Ask for Talks on Health Education

Another group which is reaching out for a better understanding of the health factor in college life is the Panhellenic Congress, composed of nineteen Greek letter women's societies. An invitation was accepted by Dr. Valeria H. Parker to address both the opening session and the banquet meeting of the Congress, which was held in Dallas, Texas, from January 5th to 9th. Further cooperation is assured as a result of these meetings.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

MEDICAL HISTORY

The month of August marks the one hundredth anniversary of the untimely death of Laennec. Though stricken in the prime of life, he lived long enough to be rated as one of the leaders in, what might well be called, the Golden Age of Medical History. Appropriately, then, this issue contains three biographical articles,—one of Laennec, one of a contemporary who has had a profound influence on American medical history and one who connects the work of Laennec with our present knowledge of tuberculosis.

The value derived from a study of medical history is becoming more generally, though not universally, appreciated. Medical beliefs, whether true or false, are social facts of great consequence. He who would orient himself as to the direction of medical activities of the present must acquaint himself with the salient medical facts of the past. The "whither" of modern medicine must be adjudged by the land-marks in the development of the healing art. The recent pragmatic demand of "what is a thing good for" has almost supplanted that older and quite as important demand "where does a thing come from". Sympathetic study of origins in our profession, while a militant foe to egotism, is a mighty stimulus to honest endeavor. Thus only do the heroes of the past become companions of the present in the achievement of the ideals of health common to all ages.

SIMPLIFIED STANDARDS

Many physicians have recently received a copy of a pamphlet prepared and published by the National Tuberculosis Association setting forth the diagnostic standards of pulmonary and glandular tuberculosis. This pamphlet may be had upon request.

Those who have struggled through the problems of borderline diagnosis of tuberculous patients are gratified that those who know most about the diagnosis of this disease believe that all that is actually known can be contained in a pamphlet of twenty-five small pages without apparent crowding. The obvious conclusion is that most of our difficulties springs from our failure to know the essential simple minimal standards upon which we may pass judgment. Usually we know too much but at the same time fail to know well the few essentials upon which the best informed physicians base their diagnoses.

The publication of these simple standards should serve as an example to other societies devoted to the advancement of their particular medical specialties. So long as this is not done there will continue to exist in the minds of many a sort of subconscious belief that, save in their own fields, there is something too difficult or obscure, to be understood and practiced by them. The "ins" could easily do much to banish this belief of the "outs" in occult in science by stating clearly and in monosyllables what is

actually known about a particular disease or specialty.

Several years ago it was authoritatively suggested that a man could secure a liberal education by the reading of a five-foot shelf of properly selected books. The idea has been carried over into medicine in the various loose leaf systems. These, however, contain much that is theoretical and speculative, **though always up to date.** The demand for brevity and essentials is not really answered in compends as these are usually an abridgement of the original theories as well as facts. A fact edition of medical knowledge could probably be encompassed by a five-inch rather than a five-foot shelf. This must in no way be construed as an aspersion on medical theories and speculation, for from such new facts are born. But it is a plea for clear treatment of the known diagnostic syndromes and proven therapy.

THE WYOMING DOCTORS

The Twenty-fourth Annual Meeting of the Wyoming State Medical Society is history, and our impression is that it recorded an advance in things medical in that state. The scientific program was unusually strong. Nationally known men such as Dr. Morris Fishbein, Dr. A. R. Mitchell, Dr. Palmer Findley, Dr. C. W. Hopkins, Dr. C. A. Roeder, Dr. Arthur D. Block and Dr. James M. Patten spoke with great authority on their appropriately assigned subjects to the profit and pleasure of those doctors who were fortunate enough to be in attendance.

Dr. C. H. Platz deserves a vote of thanks for his efficiency as presiding officer. Dr. Earl Whedon continues to earn and receive the unanimous gratitude of the Society for his unselfish and successful work in the interests of Wyoming medicine. Among state secretaries he stands among the first in America. The other officers and speakers made a very creditable showing as compared to those of other state societies.

It would tax our pen beyond its ability to attempt to express a just appreciation of what the Wyoming physicians are accomplishing in the face of great odds. Wy-

oming is a state of great distances. Mountains and deserts effectively separate the productive sections one from another. - Therefore there are few cities of over 10,000, few hospitals of great capacity or teaching clinics of any size. Despite these facts the physicians seem quite as well informed as the average. Many small hospitals have been developed and are rendering a splendid service to their communities. The state meetings are well attended, the society is well organized and the professional problems are effectively handled.

The next meeting will be held at Cheyenne. President elect, Dr. V. J. Keating and Secretary Whedon can be counted upon to furnish a three-day program of high merit.

GRADUATE COURSE IN OPHTHALMOLOGY AND OTO-LARYNGOLOGY

The fourth annual summer graduate course in ophthalmology and oto-laryngology was held in Denver, July 12-24. Local physicians were ably assisted by the following distinguished teachers:

T. B. Holloway, Philadelphia.

Robert S. von der Heydt, Chicago.

M. Uribe Tronocoso, New York City.

S. J. Kopetzky, New York City.

H. J. Prentiss, Iowa City.

The initiation and execution of such a graduate course of study commends itself to physicians everywhere. It is only reasonable to expect it to grow in enrollment and scope from year to year. Already some of our visitors are asking why courses are not offered in other lines of medicine. The wisdom of including other specialties must already have been considered by those in charge. If Denver is the economic capital of a fast growing region of 5,000,000 people, as its Chamber of Commerce contends; and if great educational foundations support the erection of a medical college in Denver, as they have done; then, apparently, only lack of initiative will prevent it from becoming one of the leading teaching centers of all branches of graduate medicine. The success of these courses in ophthalmology and otolaryngology justifies such a prophecy.

CENTENARY OF THE DEATH OF RENE THEOPHILE HYACINTHE LAENNEC:

A Brief Review of His Work*

H. J. CORPER, M.D., Ph.D.

Research Department, National Jewish Hospital, at Denver, Colorado.

When requested to present to you, on this the one hundredth anniversary of the death of René Theophile Hyacinthe Laennec (1781-1826), a general review of his scientific work, I was immediately confronted by two natural but opposite impulses. The first was a feeling of great delight and pleasure to appear before you and tell you of my profound admiration for the scientific accomplishments of our wonderful teacher in medicine, and especially in tuberculosis, and the second was the feeling of profound inadequacy to in any way do justice to the masterful work of this pathologist and clinician. If you understand my shortcomings in the second regard I am sure you will accept my apology in advance for the presentation as I give it.

To be able to comprehend fully the significance of Laennec's scientific work one must place him among his teachers and contemporaries and in the surroundings not of today but in the period when he lived. He was the logical successor of his teacher, Jean Nicolas Corvisart (1755-1821) whose straightforward and truthful character was well displayed in the unearthing, translating and acknowledging of the discovery of percussion by Leopold Auenbrugger (1722-1809), thus linking up this most valuable diagnostic method with the discovery of the stethoscope by Laennec. The work of the senior contemporary Gaspard Laurent Bayle (1774-1816), also a pupil of Corvisart, played the part of the connecting link as a result of untiring work which made possible the brilliant discovery and invaluable data accumulated by the inexhaustible Laennec.

In the hands of many, the discovery of the stethoscope would have meant little, but Laennec showed his superiority to the physicians of his time in using this method ex-

haustively and critically so that the majority of his findings, especially concerning the chest, stand practically unchanged today as they were written by him over a hundred years ago. Like any true pioneer he erred at times and one of his most conspicuous errors depicted rather his conservatism in opposition to his usual enthusiasm. This error occurred when he first noted, as reported in the first edition of "Mediate Auscultation", the significance of pathological valvular heart sounds, the value of which he later retracted because he found a number of sounds are not produced in the heart but outside of it. However, Potain subsequently proved Laennec to be really correct in his original statements. His statements based upon accurate and abundant observations carefully analyzed and verified by dissections, and frequently illustrated by histories of cases, are admirable examples of the highest grade of scientific medical writings. His style is simple and lucid. He was true and unselfish in his professional aims, his purpose being to improve his art, to seek the truth in it and to establish the diagnosis of disease upon the highest basis of pathological anatomy and accurate observation. His impelling motive in life was love of truth for its own sake and a desire to be useful to his fellowmen. His life was pathetic in social and domestic loneliness, having been married only two years before his death. In a word, here was a noble life sacrificed to science and to his fellowmen.

In 1800 Laennec entered the School of Medicine of Paris where he speedily made himself conspicuous by his industry no less than by his extraordinary ability. He worked under Corvisart at the Charity Hospital where he trained himself in the observation of disease by making notes of the most detailed character of a large number of cases. In 1802 he was awarded the two principal prizes in medicine and surgery

*Read before the Denver Sanatorium Association, Feb. 23rd, 1926, in commemoration of the one hundredth anniversary of the death of R. T. H. Laennec.



I. Jean Nicolas Corvisart (1755-1821). Translator of Auenbrugger's "Inventum Novum" linking the discovery of percussion with that of Médiatæ Auscultation by his pupil Laennec.

II. Gaspard Laurent Bayle (1774-1816). Senior pupil of Corvisart who pursued the foundational pathologic studies which inspired his colleague Laennec's studies in pathologic anatomy.



III.—René Theophile Hyacinthe Laennec (1781-1826). Auto-graphed picture of the discoverer of the Stethoscope.

IV. Laennec at the Necker Hospital at Paris with the original stethoscope in his left hand examining a patient and dictating his findings in Latin to an assistant.

V. François Joseph Victor Broussais (1772-1838). Contemporary and opponent of Laennec.



granted by the Minister of Interior through the Institute of France. In 1804 his doctorate degree was obtained with the inaugural dissertation entitled "Propositions sur la Doctrine d'Hippocrate appliquée a la Médecine pratique" giving proof of an intimate acquaintance with the works of Hippocrates. Not content, however, with the thesis as presented he later on jotted down in his own handwriting notations and modifications on various phases of the subject which showed his alertness and critical attitude even toward himself. Already in 1802 Laennec published in the Journal of Medicine, then conducted by Corvisart, Leroux and Boyer, papers on heart disease, peritonitis and other pathological anatomical subjects. In 1804 he became chief editor of this journal. In 1812 he was appointed physician of the Beaujon Hospital and in 1816 he became chief physician of the Necker Hospital where the discovery of the stethoscope occurred. At first he was inclined to leave the new instrument without a name but finding that others were suggesting various unsatisfactory ones he finally gave it the name which it has borne ever since.

From 1816 until 1819 Laennec devoted himself to the development of his discovery and in 1818 he reported his method and results to the Academy of Sciences who received it rather unenthusiastically as befits this august body and in the following year appeared the first edition of his work "De l'Auscultation Mediate". In 1823 Laennec was appointed Professor of Internal Medicine in the Paris Faculty and began to lecture in the Charity Hospital, and here it was that he displayed his ability in instructing his pupils and in teaching the art he had so laboriously evolved. To him were attracted pupils from all parts of Europe. The little spare time that remained to him was spent in rewriting his work on Auscultation, the revised edition appearing in the early part of 1826. Ill health forced his retirement from active duties and on August 13th, 1826, at the age of 45 years this valuable and fruitful life terminated, a victim to the disease for which he himself had done so much to increase our knowledge.

The earliest medical writings by Laennec consisted of a minute detailed history of nearly 400 cases studied during the first three years of his attendance as a pupil at the Charity Hospital. These very cases furnished the groundwork for all his future researches and discoveries. At the age of 21 he began to publish in the Journal of Medicine conducted at that time by Corvisart, Leroux and Boyer. About the same time he began his career as a critic or reviewer, one of his notable contributions along this line being the review of the French translation of Benjamin Bell's "Treatise on Venereal Disease". His ability as a pathologist is brought out in his "Histoires d'Inflammation du Peritoine" and then as a natural anatomist by the publication of his "Lettre sur les tuniques qui enveloppent certaines viscères". In February, 1804, he read a memoir of that variety of hydatid termed by him "Acephalocysts" before the Faculty of Medicine. On the 11th of June, 1804, he presented the dissertation for which he obtained his degree of Doctor of Medicine. This thesis proved him to be no less skilled in the knowledge of the Greek language than deeply read in the writings of Hippocrates for whom he expressed a strong admiration. A glance at this thesis impresses one with the accuracy and clarity of expression of this youthful student as well as his concise method of presenting this subject.

For a long time Laennec intended to publish a complete work on Morbid Anatomy as a part of his course of lectures in pathological anatomy but the only portions ever completed were published as separate articles in the Dictionary of Medical Sciences or in his "Treatise on Auscultation". Among his dissecting room discoveries were "Encephaloid Cancer, and Melanosis". To the Dictionary of Medical Sciences, of which he was one of the joint contributors, he presented "Anatomie Pathologique"; "Ascarides"; "Cartilages Accidentels"; "Dégénération"; "Désorganisation"; "Detrachycceras"; "Encephaloide"; and "Filaire", the latter appearing in 1816. In 1816 Laennec was appointed chief physician to the Necker Hospital and here he was speedily rewarded

for all his hard labors by the discovery of *Médiate Auscultation*. He himself was surprised that this discovery was never made before, especially so since Hippocrates was accustomed, in certain cases, to apply the ear to the chest with the view of ascertaining the presence of liquid there, and his wonder was still greater that it did not occur with the analogous discovery by Auenbrugger. From the time of his discovery Laennec devoted himself with astonishing perseverance to the perfection of the new system of diagnosis based on auscultation and with a degree of success and a fertility of results even more remarkable than the discovery of the stethoscope itself, displaying the truest character of genius. In June, 1818, less than two years after the discovery, Laennec read a memoir before the Academy of Sciences containing the outlines of his method, and in September of the following year he published the first edition in two volumes octavo on *Médiate Auscultation*, a treatise on the diagnosis of the disease of the lungs and heart founded upon a new method of exploration. Laennec took great delight in utilizing his mechanical ingenuity to turn out the stethoscope on his own lathe.

An interesting paragraph from his original work suffices to depict the manner in which the discovery of the stethoscope was actually made. It could not be better put than in the words of Laennec himself as given under the division of his book on the diagnosis of diseases of the chest. "In 1816, I was consulted by a young woman labouring under general symptoms of diseased heart, and in whose case percussion and the application of the hand were of little avail on account of obesity. The other method just mentioned being rendered inadmissible by the age and sex of the patient, I happened to recollect a simple and well-known fact in acoustics, and fancied, at the same time, that it might be turned to some use on this occasion. The fact I allude to is the accentuation of sound when conveyed through certain solid bodies,—as when we hear the scratch of a pin at one end of a piece of wood, on applying our ear to the other.

Following this suggestion, I immediately rolled a quire of paper into a sort of cylinder and applied one end of it to the region of the heart and the other to my ear, and was not a little surprised and pleased, to find that I could thereby perceive the action of the heart in a manner much clearer and more distinct than I had ever been able to do by the immediate application of the ear. From this moment I imagined that the circumstance might furnish means for enabling us to ascertain the character, not only of the action of the heart, but of every species of sound produced by the motion of all the thoracic viscera. With this conviction, I forthwith began at the Hospital Necker a series of observations, which had been continued to the present time. The result has been, that I have been enabled to discover a set of new signs of diseases of the chest, for the most part certain, simple and prominent, and calculated, perhaps, to render the diagnosis of the diseases of the lungs, heart and pleura, as definite and circumstantial, as the findings furnished to the surgeons by the introductions of the finger or sound, in complaints wherein these are used.

In prosecuting my inquiries I made trial of instruments of various composition and construction—the general result has been that bodies of a moderate density, such as paper, wood, or bamboo, are best suited for the conveyance of the sound, and consequently for my purpose. This result is perhaps contrary to a law of physics; it has, nevertheless, appeared to me one which is invariable.

I shall now describe the instrument which I use at present, and which has appeared to me preferable to all others. It consists simply of a cylinder of wood, perforated in its centre longitudinally, by a bore three millimeters in diameter, and formed so as to come apart in the middle, for the purpose of being more easily carried. One extremity of the cylinder is hollowed out into the form of a funnel to the depth of an inch and half, which cavity can be obliterated at pleasure by a piece of wood so constructed as to fit it exactly, with the exception of the central bore which is continued through it, so as to

render the instrument in all cases, a pervious tube. The complete instrument,—that is with the funnel-shaped plug infixed,—is used in exploring the signs obtained through the medium of the voice and the action of the heart; the other modification, or with the stopper removed, is for examining the sounds communicated by respiration. This instrument I commonly designate simply the Cylinder, sometimes the Stethoscope.”

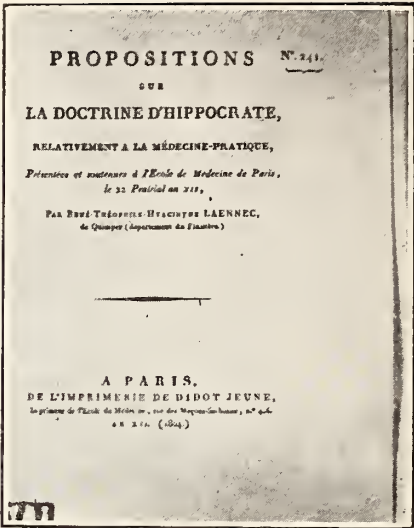
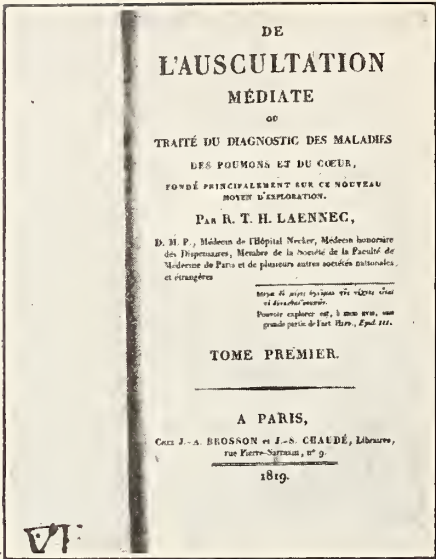
The treatise on *Médiate Auscultation* is divided into three parts; the first, dealing with exploration of the chest, the second, diseases of the lung, and the third, diseases of the circulatory system. He thus treats in an interesting and enlightening way practically all of the disease condition of the human chest and incidentally diseases of the rest of the body. The arrangement of his subject matter forcibly emphasizes that consumption is due to the formation of something in the lungs which was not there before, and not to inflammation of the tissues or to aberration of secretions. He credits Bayle with having described the progress and development of tubercles more exactly and completely than ever had been done before. Laennec and Bayle practically described the pathological anatomy of pulmonary tuberculosis as we know it today from a macroscopic standpoint, beginning with the miliary tubercle and terminating through the various changes with cavitation. He noted the primary upper lobe localization of the tubercles and their preference for the right side with a tendency for the spread of the disease toward the base of the lung. The frequent involvement of the intestines was also called attention to by him, as well as the rarity of tubercles in voluntary muscles. The pronounced emaciation affecting mostly the muscles and the adipose tissues with a tendency toward fatty infiltration of the liver is also pointed out. He did not subscribe to the general view that consumptives are usually subject to anal fistula and that this has a retarding effect upon the disease. He is inclined to the view that it exercises no influence.

He strongly opposes the view that inflammation produces tubercles and in this he

comes in direct conflict with Francois Joseph Victor Broussais (1772-1838), a strong supporter of the views of the physiological inflammatory origin of the disease. An old opinion in medicine that a badly treated or neglected cold frequently degenerates into pulmonary phthisis is not subscribed to by Laennec but in opposition to Broussais, who thus contends, he points out that one finds very large and numerous tubercles in individuals who have had no signs of catarrh, and on the other hand thousands of men have many colds during the year and few of them become consumptives. Catarrh no doubt is often produced by phthisis but is never the cause of it. The idea of tubercles in the lung being caused by pleurisy is considered by him equally absurd. He differs with Bayle, who regarded tuberculous phthisis as incurable. He gives numerous clinical records and autopsy findings to illustrate the points made. According to him tubercles in the lungs are not in all cases an inevitable cause of disease, and after their softening has produced an ulcerous cavity in the interior of the lung, recovery of the lung may take place. He believes the greater incidence of phthisis in the large cities is due to the worries and troubles of city life as compared to village and country life. Mountains and sea shore places appear more free of the disease than inland and lowlands. Hemoptysis, regarded as a cause of tuberculosis, he looks upon as a result. His stand on the contagiousness of tuberculosis is very cautious and it does not seem to him that clothing and furniture can convey the disease but a disease which is not usually contagious may under certain circumstances become so and as a point to this he speaks of his own inoculation at the autopsy table.

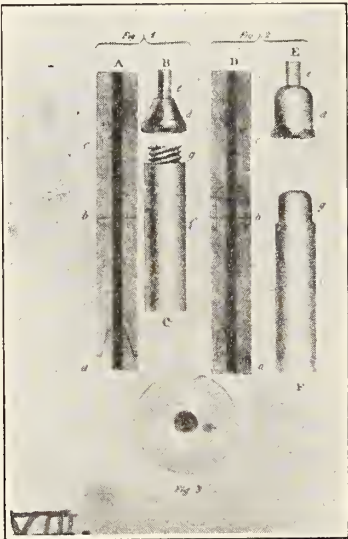
In a chapter devoted to treatment he lays great stress upon the powers of nature to heal the disease and emphasizes early recognition and the prevention of secondary eruption of tubercles. He was opposed to cauterization, blistering and drugging and was favorable to a change of climate and the use of milk.

In striking contrast to Laennec was Broussais, the senior of both Bayle and Laennec,



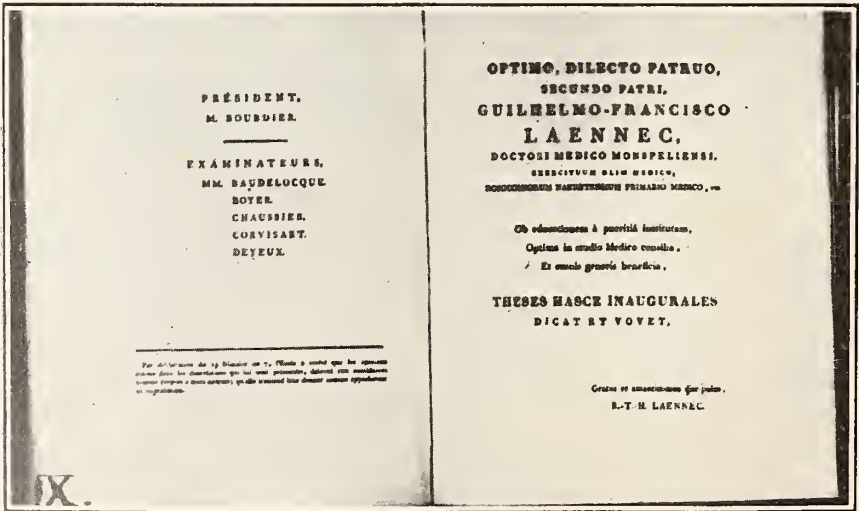
VI. Title page of the first French Edition of the "Treatise on Médiat Auscultation" in 1819.

VII. Title page of Inaugural Dissertation in 1804 presented for Laennec's doctorate.



VIII. The stethoscope as delineated by Laennec in his 1819 first (Fig. 1) and 1826 second (Fig. 2) editions on Médiat Auscultation.

IX. The second and third pages of Thesis showing names of examiners and teachers, and dedication.



who had a strong leaning toward ancient teachings and formulated the theory that irritation is the basis of disease and that disease manifests itself by inflammation. A paragraph or two from Broussais' book, "Principles of Physiological Medicine," will serve as a striking contrast between these two men.

"Proposition I. Animal life can be supported only by external stimulants and whatever augments the vital phenomenon is a stimulant."

"Proposition XIX. The voluntary movements having brought the nutritive materials in contact with the organs of dissimulation, the latter assimilate them to the individual."

"Proposition CLXIII. Peripneumonia often commences with catarrh or inflammation of the mucous membrane of the bronchia. The superior lobes of the lungs are then the principal seat of the inflammation; and if this inflammation be chronic, it develops tubercles in the summit of the parenchymatous structure of the lungs and produces phthisis."

"Proposition CLXVI. Pleurisy which predominates in the pulmonary pleura with or without effusion, and atrophy of the lung which it covers, sometimes induces inflammation of that lung, and may, if the inflammation become chronic, develop tubercles in it."

"Proposition CLXVIII. I have never seen tubercles without preceding inflammation. Those found in children at birth, do not appear to me independent of this phenomenon."

"Proposition CLXX. Cartilaginous, osseous, and calcereous granulations, melanosis, scirrhus, encephaloid tumors, and cancers of the lungs, are produced in the same manner as ordinary tubercles."

"Proposition CLXXI. The term phthisis pulmonalis expressing only the disorganization which is the product of inflammation of the pulmonary parenchyma, ought not to be applied to this phlegmasia. It would be better to call it chronic pneumonia, thus specifying the tissue of the organ in which the disease commenced."

These chapters from the book of a theo-

rizer like Broussais, whose deductions are not even empirical, stand in striking contrast to those from the pen of a trained writer and scientific observer like Laennec, and it was not surprising that Gaspard Laurent Bayle's cousin, Antoine Laurent Bayle (1799-1858), a pupil of Laennec, in 1824 founded the "Revue Médicale" to combat the contentions of Broussais. Gaspard Bayle and Laennec by removing tuberculosis from the category of inflammatory diseases and designating tubercles as a new growth destroyed Broussais' theory, and there could be no compromise. If Bayle and Laennec were right, Broussais was wrong. However, time has left an indelible impression of the work of these two men while the doctrines of Broussais have faded out.

The English translator of Laennec's book makes the following peculiar statement, "However eminent as a pathologist, however qualified for accurate observation, and however gifted with inventive genius, it is the opinion of many who had opportunities of personal observation, that Laennec did not possess, in a high degree, the mental qualifications necessary to constitute a great and skillful practitioner. Even in the very class of diseases, in the knowledge of whose pathology and signs he was without a rival, his practice was not reckoned of that scientific and comprehensive kind, which bespeaks a mind accustomed to take in at once the whole of the morbid processes, and quick and fertile in expedients to control or relieve them." It is easy to see how the above would be the tendency of contemporaries jealous of Laennec's eminence. Had he, however, been too practical along these lines it is doubtful whether he would ever have achieved or accomplished as much as he did. Laennec was a little man physically, but active and of great endurance. As a physician and a scientist he was absolutely honest and unselfish. He had a good heart, an equable temper and a gentle courtesy of manner which made him beloved by his students who flocked to him from all parts of Europe and spread his teachings so that he lived far beyond his bodily existence in the cherished remembrance of mankind.

THE INFLUENCE OF LOUIS ON AMERICAN MEDICINE*

HENRY SEWALL, M.D.

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We are gathered tonight to lay our wreaths of sentiment on the tombs of medical heroes whose lives enriched humanity.

The student of history cannot fail to find a trace of sardonic humor in the misappreciations of persons or events as viewed through the mental spectacles of observers having different conceptions of the relative importance of things. In seeking data of him whose spirit I would fain invoke, Pierre Charles Alexandre Louis, I have found no mention of his name in volumes expressly designed to represent for the general reader the panorama of history. Thus, the Century Dictionary condenses his biography within four short lines, a characterization less complete than the average tombstone's obituary. The International Cyclopedia and the Encyclopedia Britannica, 11th edition, give ample space to a horde of kings and potentates named "Louis", but not one word to indicate that **our** Louis ever existed.

But we are not left uninstructed, for a master-craftsman of our profession, whose name is still poignant of an aching void in us, in 1897 wrote a characteristic appreciation of "The Influence of Louis on American Medicine".¹

William Osler distributed broadcast through half a century of surcharged magnetic, radiant life all things which his mind had resolved which might help his fellow-workers; perhaps in no field of his immense purview did he work to better purpose than in his epitomized sketches of persons who illustrated principles of medical evolution.

If my essay fills its definite purpose you will be led to turn to Osler's original paper. You will find there **verbatim** some things that I shall say—and much more. And we have the inestimable privilege of viewing his own precious record transferred, as it were, to canvas by a master artist who has been able not alone to trace the photographic lineaments but to mould the living

expression which catches the mind and soul in action and lays bare the deeps of hopes and loves, the fears and judgments of real life.² If his spirit still lives and can exercise its wonted choice there is no doubt it hovers near in sympathetic accord with our designs; we who knew him can catch the approval in his deep dark eyes.

The purpose of this sketch is to trace briefly the intellectual influence of Louis upon the medical profession of America, but first it is expedient to consider the environment of Louis himself from which he must largely have drawn his own inspiration. Laennec, the outstanding figure in the thoracic pathology of his time, was born in 1781 and died in 1826 at the age of 45. Louis was born six years later than Laennec, in 1787. He did not die until 1872 aet. 85 years, though he had retired from active practice in 1854. We find that they were contemporaries for thirty-eight years, including all the active life of Laennec, and Louis, for half this period and for sixteen years after Laennec's death, was carrying on his personal studies.

You have seen how the genius of Laennec was applied, not to the accumulation of a remunerative clientèle but to study of the pathologic states of the thoracic viscera and their illumination through the application of auscultation.

This was the first manifestation, of which I am aware, of the entrance of the French clinician into the thin ranks of the builders of medical science. Clinical Medicine had survived by independent propagation. Already, about 1673, Moliere, the poet, had caricatured doctors and made them a laughing stock for near two centuries. Medical progress in France owed little to medical men. It was a chemist, Lavoisier, who in the last decade of the eighteenth century, disclosed the nature of Respiration,—according to Michael Foster it was he alone who discovered Oxygen. It was two French mathematicians, Lagrange and Laplace, who directly participated and helped in the

*An address before the Denver Sanatorium Association, Feb. 3, 1926.

discovery of the true nature of Respiration as a process of combustion.

In England the data for a science of medicine had been fairly steadily accumulating since Harvey disclosed the experimental method of research in the early third of the seventeenth century. The bitterest and most forceful opponent of Harvey's doctrine of the circulation was found in Riolan of Paris. Medical science and art in France lacked the essentials of knowledge—**facts**; and all authority emanated from those who lived in the atmosphere of theoretical principles to which observed conditions had to conform, and was alert to oppose any other method.

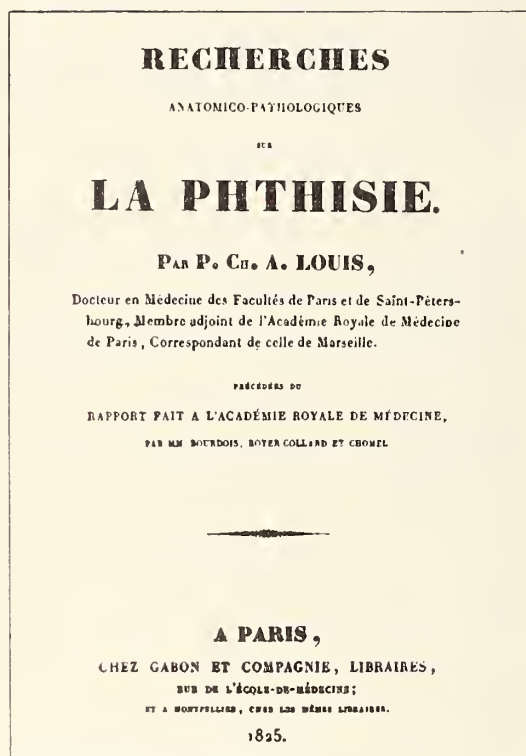


Fig. 1. Title Page Louis' Book

As Osler says,¹ "The study of fevers occupied the attention of all the great physicians of the time. Fever—what it was, how it should be treated. What a vast literature exists between Sydenham and Broussais! What a desolate sea of theory and speculation! * * * Upon this scene, when Broussais was at the height of his fame, came Louis. He, with his friends, Andral and Chomel, were very important factors in substituting finally in the study of medicine, for speculation and theory, observation and method."

The great merit of Louis, as I view it, was the application of the inductive method to the study of disease. It was, indeed, but a return to the forgotten Hippocratic method of intensive observation and accumulation of clinical and pathological facts. Let us glance over the career of the man.

He was, as said, born in 1787. He was apparently of weakly constitution, not passing the inspection for military service. He began the study of law but relinquished it for medicine in which he graduated at Paris in 1813, in his 27th year. While waiting at his home in Aï, uncertain what to do, a visitor friend, who held an official post in Russia, invited him to return with him to St. Petersburg. He accepted the invitation and for three years seems to have wandered about with his friend.

He then established himself in Odessa, where he practised with success for four years. But he was dissatisfied with the state and methods of medicine and was especially disturbed by the high rate of mortality from diphtheria in children. He determined to suspend the practise of medicine and devote himself to the collection of facts and to study.

He therefore returned to Paris and for six months attended the Children's Hospital. Among the rising young physicians of Paris was a former fellow student, Chomel, who offered him the opportunity of working in his wards at La Charité Hospital. Louis here established himself, occupying a room in the hospital. He renounced private practice and, first as voluntary assistant to Chomel and then as his chief of clinic, worked here for six years, until the age of forty, studying disease in the wards and its results in the postmortem room. He accumulated an enormous mass of notes in which were recorded minutely the history of each patient with the circumstances attending the onset of disease, the symptomatology and the apparent effect of treatment; and in fatal cases he made a most detailed postmortem examination and compared the results with the previous clinical course of the disease. As may well be imagined this minute and laborious study was the frequent object of

derision among his colleagues who could see no practical application of this mass of material. Louis, himself, was at times brought to the verge of despair over the difficulties of the task to which he had set himself. But after the accumulation of a great number of facts he set himself to their analysis and classification.

It then became plain that his "numerical method" offered the soundest and most scientific basis for the establishment of conclusions. Says Osler: "From this moment may be dated the presence of that strong impression of the necessity of exact observation by which the School of Paris has since been so distinguished, and which is now gradually pervading the medical institutions of the Continent and our own Country; it is undoubtedly to (Louis) that we ought to ascribe the practical revival of that system which had for ages been verbally recognized but never before vigorously exemplified."

Louis' first important publication was his volume of *Researches on Phthisis* founded on five years' hard work in the wards of La Charité. The lesions observed at autopsy are first described under the different organs with great accuracy of detail, and then summarized, following which is an elaborate description of the symptomatology.³

"Much had already been done by physicians of the French School on this subject. Bayle's important *Recherches* had been issued in 1810, and Laennec had revolutionized the study of phthisis by the publication of his treatise on auscultation." "I do not know", said Osler in 1897, "of any single work on pulmonary tuberculosis which can be studied with greater profit today by the young physician."⁴

The first edition of Louis' *Researches on Phthisis* was published in the autumn of 1825; the second edition eighteen years later, in 1843. In this interim Louis' mind evidently had been turned to the great practical problem of the Control of tuberculosis in its social aspects and his conclusion was a prevision of the method whose application was not realized until the present generation. He writes in his preface to the sec-

ond edition, "Unless I am greatly mistaken, the associated efforts of a great number of medical men placed in different circumstances are absolutely requisite for the establishment of any grand and really useful result in respect of the causes and treatment of phthisis. Some of these medical men should be attached to large public institutions, others hold no such appointments; the medical staffs of the army and navy should furnish their contingents,—in a word, nothing less than an actual crusade would suffice." Then, after suggestion of details according to which the work should be carried on, he concludes, "My conviction, I repeat, is—and it is a conviction shared by many—that the study of the causes and treatment of phthisis cannot henceforth make solid progress but by association."⁵

The numerical, or as we might call it, the statistical, method of studying diseases introduced by Louis was not accepted without opposition. For example, one of the foremost clinicians of the age, Armand Trousseau (1801-1867), was first a vehement opponent but later an enthusiastic advocate of the method; hear what he says: "I was one of the most violent and unjust detractors of this method: **I did not understand it.** Now that I have studied it I feel that it alone is capable of insuring the solid advancement of our science, that it alone can enable the observers of one age to avail themselves to useful purpose of the labours of preceding ones, and slowly raise a structure which the reveries of a Galen or a Paracelsus must fail to overturn."⁶

In the time of Louis the very prevalent typhus fever was held to be identical with what we now know as typhoid fever.

Louis' second great work furnished the anatomical basis for distinction between these two diseases. It was published in 1828, in two volumes, based on observations made between 1822 and 1827. This was a study of the postmortem findings after acute diseases

⁵I had supposed that this was the first proposal for organized study of tuberculosis, but J. J. Waring has referred me to Dr. Flick's *Development of Our Knowledge of Tuberculosis*, 1925, where, p. 302, it is shown that in 1799 Thomas Beddoes had clearly grasped and promulgated the idea.

with gastro-enteric symptoms. In 133 cases he segregated fifty with affection of Peyer's patches and thereby designated the characteristic intestinal lesions of what we know as typhoid fever; he compared altogether the symptoms of nearly 900 cases.⁵

"Louis appears not to have had any idea whatever that the disease which he was studying (typhoid) was in any way different from the diseases prevailing in other parts of Europe and which we now know as typhus fever".¹

As will shortly be seen it was left for one of Louis' pupils, Gerhard of Philadelphia, to translate his own experience by the key furnished by his teacher and settle for all time the anatomical diagnosis of Typhoid fever.

Louis now turned the battery of his numerical method on the prevailing therapeutical methods of his day and issued his essay on Bloodletting. This work was translated at the instance of James Jackson, Sr., a leading practitioner of Boston. In his preface to the translation, Jackson wrote: "If anything may be regarded as settled in the treatment of disease, it is that bloodletting is useful in the class of diseases called inflammatory, and especially in inflammations of the thoracic viscera".⁶

The chief impediment to scientific comparison of therapeutic values in different epochs lies in the difficulty of recognizing with certainty the nature of the pathological entities dealt with in the past. Still more uncertain must remain our estimate of the degree of virulence of the infecting organism. Especially difficult is the estimation of the comparative efficiency of various therapeutic measures applied to the treatment of pneumonia. This word connotes a congeries of pathological entities. Whether the pneumonias of a hundred years ago were the frank lobar consolidations due to pneumococcal invasion or the mongrel varieties we see so often today, cannot be premised.

The work of Louis was admirably conducted according to his numerical method; its scope is sufficiently indicated in the title of his book. Louis records a group of 29 cases of what seems to have been lobar pneumonia occurring in healthy adults.

Twenty-five of these recovered and four died; a mortality of less than 14 per cent. The patients that recovered had been bled from one to three times each, losing an average total of 16 to 29 ounces of blood, though frequently 30, and once 50 ounces were drawn at a single bleeding.

Frequently bleeding was continued to the production of faintness. Seventeen of the recovered cases had received in addition to bleeding courses of antimonial treatment (the reader should consult, say, Wood's Therapeutics for the nature of the now abandoned drastic derivative drug, **tartar emetic**). From six to twelve grains of the drug were given in the course of the day in six or eight doses. Louis writes, "The increase in strength, the day following the exhibition of antimony, is the more remarkable as it induced frequent vomiting and purging. Out of seventeen cases, sixteen had copious dejections, eight to fifteen in number the first day; less frequently on the following".

Apparently summarizing another series of cases, he writes: "It appears then that out of twenty patients, in a hazardous condition, to whom antimony was given, only three died; this seems to me to remove all doubt, as to the utility of large doses of antimony in the treatment of pneumonitis; especially when it is considered that these three patients were sixty or seventy years of age".

A similar opinion seems to have been held by Laennec himself. Louis quotes him as follows: "In the year 1824, at the Clinique of the Faculty, I treated with antimony, twenty-eight cases of pneumonitis, either pure or complicated with slight pleuritic effusion. All these recovered with the exception of one cachectic old man, whose mind was already much impaired by age and who took but little antimony because he could not bear it. These cases, nevertheless were, for the most part, very severe. In the course of the present year * * * the mortality was a little less than one in twenty-eight." It is only fair to observe that Louis criticises the lack of detail in Laennec's statements and even casts suspicion on the accuracy of his diagnosis of pneumonia.

Now I am holding no brief for a return to the use of the drastic irritant, tartar emetic. One can only wonder, with Osler, whether the diseases of a hundred years ago were the same as those we call by the same name today, or whether our ancestors were not endowed with stronger constitutions than are we. It remains to be said that Louis abandoned the use of blisters in inflammatory disorders (pleurisy and pericarditis) after having seen 140 patients with pleurisy recover without them.

It is worth observing, however, that the dread sequel to pneumonia, **empyema**, with which we are so familiar today, finds no mention whatever in the literature from which I have quoted.

Among his final conclusions Louis holds, "that bloodletting has a happy effect on the progress of pneumonitis; that it shortens its duration, that this effect, however, is much less than has been commonly believed. * * * That where bloodletting proves ineffectual, consequently, in severe cases, antimony, in large doses, acts favorably, and appears to diminish the mortality."

Fascinated with the researches of Louis, but startled at his lukewarmness as to the benefits of venesection, Dr. James Jackson, Sr., repeated some of Louis' investigations on pneumonia at the then new Massachusetts General Hospital.

The disease studied by him was more or less preceded by influenza. Of 34 cases carefully studied and, for the most part, bled freely and more or less vigorously treated with antimony or other emetics and earthartics—all recovered. It remains to observe that the diagnosis of pneumonia here seems to have been wholly unreliable. The author frankly admits that he and his colleagues felt so little confidence in their interpretation of physical signs that they failed to record them. We must remember, too, that diagnosis lacked the aid of objective temperature measurements, for the clinical thermometer was not in use until many years later.

Louis' work is said to have strongly impressed the medical profession in America. Perhaps its most salutary influence was in

shaking their confidence in a drastic therapeutics which had been routinely followed, and in emphasizing the importance of studying in patients physical diagnosis during life and pathological anatomy after death.

Says Osler: "Powerful as was the effect of Louis' writings on American medicine, it cannot compare with the influence which he exerted through his pupils, 'who caught his clear accents, learned his great language, and made him their model'."

It is unfortunate that we cannot devote the time to hark back to the condition of medical education in the United States in the early half of the nineteenth century. There were few worthy schools of medicine. The intellectual élite sprang from Harvard at Cambridge, Columbia at New York, University of Pennsylvania at Philadelphia, the University of Maryland at Baltimore, and a few others. The wellsprings of knowledge were in Europe. Wellnigh all authority was trans-Atlantic. European approval of American abilities was eagerly sought by all who emulated medical distinction.

For a long time the better students from American medical colleges, who could afford the expense, had hied them to Europe for additional study. The purer American breed of that day turned naturally and with the best of reasons to their forebears of Great Britain for authority and for inspiration. The English names of Richard Bright, Thomas Addison, Thomas Hodgkin, James Parkinson, Thomas Watson; the Scotch, James Braid, James Esdaile,—the pioneers in scientific hypnotism; the unique Irish trio, Robert Graves, William Stokes, John Corrigan, must have been household words in families of aspiring medical students. Stokes, by the way, was a direct successor of Laennec in clinical method and viewpoint.

The supremacy of the clinics of Vienna and the systematic development of medical education in Germany under aegis of the State, led by a galaxy of brilliant and highly trained teachers in every field of medicine, hardly began to make its world-impress until the second half of the century. Perhaps political irritation lingering between the mother country and her recent colonies

resulted in a lack of cordiality which numbed the advances of American students towards their nearest kin. It would be surely worth while for some competent pen to trace the forces concerned in the development of American medical thought, if such has not already been done. There must have been some definite reason which turned the faces of American students away from Great Britain to the Continent.

France seems to have occupied somewhat the same relation to American post-graduate medical education in the first half of the nineteenth century that Austro-Germany did in the second half.

To resume with Osler, "There had been, of course, in Paris many students from this country prior to 1830, but they do not form a school recognizable to us at present. * * * Without attempting to give a complete list, the following were among the American students in Paris between 1830 and 1840."

He then cites thirty-eight names, many of them well known to all of us as medical leaders of two or three generations ago, as, from Boston: H. I. Bowditch, Oliver Wendell Holmes, George C. Shattuck, J. C. Warren (then past middle age), and J. Mason Warren. From New York: Abraham Dubois, Alonzo Clark, Valentine Mott, Sr., and John V. Metcalf. From Philadelphia: G. W. Norris, W. W. Gerhard, Casper W. Pennock, Alfred Stillé, John B. Biddle, William Pepper, Sr.

But the most important figure as well, perhaps, the youngest, has not been mentioned. Says Osler, "James Jackson, Jr., is the young Marcellus among the physicians of his country, 'the young Marcellus, young but great and good'. I do not know in our profession of a man who died so young who has left so touching a memory. He was the son of Dr. James Jackson, of Harvard, one of the most distinguished of New England's physicians, a man to whom our generation owes a heavy debt, since he, with Jacob Bigelow, was mainly instrumental in bringing about more rational ideas on the treatment of disease. Of Louis' pupils from this side of the water, young Jackson seems to have been his special favorite. After tak-

ing the B. A. degree at Cambridge in 1828, Jackson attended the medical lectures at Harvard, and in the Spring of 1831 went to Paris. During his stay in Paris he made an important study of cholera, which was published in this country in 1832. It was most timely, as it gave the profession here a very clear and accurate description of the disease, of which up to that time they had had no experience. Jackson's name, too, will always be associated with the studies upon emphysema, and he is the discoverer of the prolonged expiration in early pulmonary tuberculosis".¹

The personal relations between Louis and young Jackson were very warm. Louis loved and respected him as a highly endowed son; Jackson loved his teacher with more than filial fervor. Louis wrote to the elder Jackson in 1832 urging that he arrange to permit his son to prolong his period of scientific study; he wrote: "Let us suppose that he should pass four more years without engaging in the practice of medicine, what a mass of positive knowledge will he have acquired! How many important results will he have been able to publish to the world during that period! After that he must necessarily become one of the bright lights of his country; others will resort to him for instruction and he will be able to impart it with distinguished honor to himself".

"But young Jackson returned to Boston in the autumn of 1833, he spent the winter preparing for his degree and elaborating the notes he had taken in Paris. He graduated in 1834. But in March he fell ill with a dysentery, which proved fatal on the 27th of the month, in the twenty-fifth year of his age * * * His influence in extending Louis' methods and views throughout New England was chiefly through his father, who, though a man approaching his sixtieth year became an ardent follower of Louis and the numerical method".¹

I trust I may have stimulated you to review for yourself Osler's satisfying account. Nothing could be more instructive than his tracing of the development of W. W. Gerhard, of Philadelphia, a fellow student of Jackson's in Paris. On his return home Ger-



Fig. 2. Osler at the Tomb of Louis

hard was able in 1836 to satisfy himself as to the duality of typhus and typhoid fevers—which had been hitherto universally considered one entity. “He declared positively after the study of two hundred and fourteen cases, that the typhus fever, which was similar to the disease which he had also seen in Edinburgh, was a different affection altogether from the typhoid fever with intestinal lesions,” (as described by Louis). Gerhard’s work on Diseases of the Chest appeared first in 1842, and through it we come in direct touch with the master, Laennec.

It was a handsome thought of A. C. Klebs to preserve for us an account of that tender meeting in October, 1905, when William Osler, rimmed in a group of fourteen familiar faces stood with bared head before the tomb of Louis in the cemetery of Mont Parnasse.⁷ As one Master of another Osler paid his tribute, saying in part: “While not sitting with Bichat and Laennec on the very highest seats of our professional Valhalla, Louis occupies a seat of honor and distinction with his friends, Andral and Chomel, and with Bretonneau and Corvisart, with Bright, Addison and Hodgkin, with Skoda and Schönlein. Among the men who gave to clinical

medicine of the nineteenth century the proper methods of work, Louis has special claims to remembrance as the introducer of the numerical method, by which he made his works on typhoid fever and on phthisis storehouses of facts which are consulted today by students of these diseases.”

And Osler laid their wreath on the steps;
And there we lay ours, too.

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Building a Cathedral

An inquiring traveler came upon three men engaged in cutting stone.

“What are you doing?” he asked the first.

“Cutting stone,” answered the man.

“What are you doing?” he inquired of the second.

“I am earning five dollars a day,” the man replied.

“And what are you doing?” the third man was asked.

“I am building a cathedral,” was the answer.

There’s a moral in this story for the idler in medicine—he’s the man who is just “cutting stone;” there’s a moral in it for the man engaged in the practice of medicine who looks on the work in which he is engaged as a “business”—he’s the man who is “earning five dollars a day;” there’s a moral in it for the earnest physician who believes that he is engaged in the noble work of a scientific profession, whose first and lasting aim is to render helpful service to all mankind—he is “building a cathedral.”—A. M. A. Bulletin.

Child Labor Law Violations Decreasing in Wisconsin

Improvement in enforcement of the Wisconsin child labor law is shown by the report of the Industrial Commission of Wisconsin for 1925 of the payment of triple compensation indemnity under the accident compensation law by employers in fifty-seven cases involving child labor law violations, as against corresponding figures of 87 cases in 1924 and 69 in 1923. Fifty of the children for whom increased compensation was paid in 1925 were employed without labor permits and the remainder in occupations prohibited by law. The total amount of extra compensation paid in 1925 was \$11,596.39, of which one employer alone paid more than \$5,500.—U. S. Department of Labor Children’s Bureau.

VILLEMIN AND THE TRANSMISSIBILITY OF TUBERCULOSIS

JAMES J. WARING, M.D.

The physician of the twentieth century called to examine a patient with an obscure pulmonary disorder grasps his stethoscope with confidence in his ability, thus equipped, to diagnose accurately the condition. If well grounded in the history of his profession, he will perhaps at the moment of confirmation of his opinion, and reminded by the touch of his ever-present stethoscope silently return thanks to the Frenchman,



Fig. 1. Jean-Antoine Villemin.

Laennec, dead now one hundred years, for his great gift of Auscultation. Later, at the bed-side of a consumptive patient, watch in hand counting the beats of that all too-rapid heart, he is reminded of Louis, first after Floyer to time the pulse by the watch and so is led to acknowledge his further debt to this same Louis for accurately correlating the symptoms of tuberculosis with the morbid anatomy. Later still, in the sanatorium, in the private home, or in the office instructing his consumptive patient in the care of his sputum, or at City Hall reiterating his

demand for enforcement of the anti-spitting ordinance, or on the public platform propounding the contagiousness of tuberculosis, voicing his popular appeal for cooperation in the campaign against the Great White Plague, does he call to mind Villemin, who first proved the communicability of tuberculosis? His stethoscope reminded him of Laennec, his watch of Louis, nothing in his daily routine reminds him of Villemin! But the laboratory worker, syringe in hand inoculating the guinea pig, doggedly pursuing his scientific studies in tuberculosis, often pauses a moment to pay tribute to the third and perhaps the greatest of these three great Frenchmen. Villemin (Fig. 1) not only gave adequate proof of the specificity of the tubercular virus but in so doing beautifully demonstrated the value of the animal experimental method for the study of disease.

It is strange that we know so little of Villemin, the man, indeed so little of Villemin, the worker. He was born in 1827, the son of a farmer of small means, at Prey in the Vosges Mountains of France. His boyhood school days were spent at Bruyères where he was fortunate enough to meet and to know Professor Mougeot, an old physician, well-known naturalist and mycologist, who set him to drawing plants for his collection and probably was the first to waken his scientific curiosity. He later studied at the Faculty of Medicine at Strassburg, entered the military department of the French army in 1848, and subsequently held the post of tutor in the military medical school of Strassburg. Here he won the friendly regard of an eminent botanist, Professor Fee, for whom he acted as assistant, preparing his demonstrations in natural history and making illustrations of plants. In 1853 he obtained his degree of M.D., and shortly after left Strassburg to become, 1863, Associate Professor of Clinical Medicine at Val-de-Grâce. In 1860 he published jointly with Professor Morel a work on human anatomy, "Abstract of Human Histology", the illustrations of microscopic anatomy in which were done by Villemin, him-

In the preparation of this essay the writer has drawn freely and mainly from Krause's splendid essay on Villemin in the *Journal of the Outdoor Life*, February, 1918, from Flick's "Development of our Knowledge of Tuberculosis", and from I. Straus, "La Tuberculose et Son Bacille".

self. At Val-de-Grâce, in 1867, he became Professor of Hygiene and of Legal Military Medicine; in 1873, Professor of Clinical Medicine, succeeding his friend, Professor Godelier; in 1882, Chief Physician at the Hospital and Assistant Superintendent at the School. When he left Val-de-Grâce and the service in the army in 1885, he was promoted to the rank of Medical Inspector General. In 1874, he was elected a titular member of the French Academy of Medicine in the section of Pathology, and at the time of his death in 1892, was vice president of the Academy.

In 1894 a monument (Fig. 2) was erected to him at Bruyères (Vosges). At the foot of a marble pedestal reclines a young girl apparently a consumptive, with head and eyes turned beseechingly upward toward a bronze bust of Villemin. The pedestal was designed by Mougenot and the bust by Jacquot. On the back of the monument is the following inscription:

VILLEMIN

1827-1892

Professeur au Val-de-Grâce

Membre de l'Académie de Médecine

La tuberculose est une affection spécifique; sa cause réside dans un agent inoculable.

(Académie de Médecine, 1865)

ÉLEVÉ PAR SOUSCRIPTION DE
L'ASSOCIATION MÉDICALE
DES VOSGES
PAR SES COMPATRIOTES
ET SES AMIS

It must have been about the latter part of 1864 that his interest in the contagiousness of tuberculosis was aroused by having placed under his care in the hospital three soldiers with tuberculosis. The first was a "veritable colossus" and prompted Villemin to remark to his students that it was incorrect to consider this malady always an affliction of the malnourished. The arrival of a second soldier with tuberculosis from the same barracks and, indeed, a *room-mate* of the first, and shortly after the arrival of a third, set Villemin's alert mind to pondering over the significance of the close association of these cases. Was tuberculosis transmissible? How to find out? Presently, he built in one of the courts of the school some cages where he raised a few rabbits and guinea pigs and on

March 6th, 1865, began his experiments by inoculating a rabbit with some particles of morbid material from the lung of a consumptive.

His earliest published work on tuberculosis was: "The Tubercle from the Point of View of its Location, its Evolution and its Nature", 1860, in which, however, he makes no mention of his ideas on the specificity of the tubercular virus.

On December 5, 1865, at the meeting of the Academy, he read his paper, "The Cause and Nature of Tuberculosis," for the first time maintaining the unity of tuberculosis, its specificity and inoculability. He said in part: "Tuberculosis is the effect of a specific causal agent, of a virus, this morbid agent ought to be found, as its congeners in the morbid products which it has determined by its direct action upon the normal elements of the affected tissues. Introduced into a susceptible organism, this agent ought there to reproduce itself and to reproduce at the same time the malady of which it is the essential principle and the determining cause." His experiments were simple, his animals were a few rabbits, his laboratory equipment was meager, but his conclusions were of startling significance. "On March 6th we took," says he, "two young rabbits aged about three weeks. In one of the rabbits we placed in a small subcutaneous wound behind one ear, two small bits of tubercle and a little purulent fluid from a cavity in the lung, taken from the lung and the intestine of a consumptive dead about thirty-three hours. On the 30th of March and the 4th of April we repeat the inoculation of a bit of tubercle. On the 30th of June we sacrifice the two rabbits. We find in the one which has been inoculated the following lesions: a seed plot of tubercles the length of the great curvature of the stomach; some tubercles in the small intestine and in the substances of the two kidneys; the lungs are full of large tuberculous masses formed by agglomeration of many granulations. The brother rabbit, which has shared the same conditions of existence presents *absolutely no tubercle*." Coincidentally, Villemin had inoculated other rabbits with differ-



Fig. 2. Monument erected Sept. 30, 1894, to the memory of Villemin at Bruyères (Vosges), France

ent substances, such as material from a cholera patient, pus from an abscess, pus from a case of anthrax, but all these rabbits presented at autopsy no tuberculous lesions. He showed that rabbits and guinea-pigs were susceptible to tuberculosis and that dogs and sheep were relatively insusceptible. To reproduce tubercle and cheesy patch he showed that it was immaterial whether he inoculated gray tubercle or caseous material, both contained the specific virus and were but different stages of the same process. He proved the tuberculous nature of scrofula and reproduced tubercle by inoculating the sputum of consumptives into animals and also by injecting the blood of consumptives.

In 1866 he read his second paper on the same subject before the Academy and in 1868 published his book: "Studies on Tuberculosis. Rational and Experimental Proofs of its Specific Nature and Inoculability", (Fig. 3).

One of the most remarkable things about Villemin's work was that he was the first to appreciate the significance of generalized tuberculosis. The evolution of the tubercle at the point of inoculation, the time which elapses between the moment of this inoculation and the appearance of the disseminated tubercular eruption in the different organs, the multiplication and the progressive intensity of the morbid product led him to believe that the initial tubercle developing at the point of inoculation of the virulent matter, becomes the source of generalization of the infection, just as in syphilis the chancre constitutes a local lesion at first and from there spreads a general infection through the body.

Following the reading of Villemin's first paper a controversy, mainly academic, raged in the meetings of the Academy for more than a year. It covered all phases of the subject, general infection, pathology, virulence, specificity, inoculability, heredity and so forth. In it, Straus says, took part the most distinguished medical men of the day in France. At first, his views were almost unanimously opposed. To understand the reason for this, it is necessary to remember that all this took place before Koch's dis-

covery of the bacillus (1882) and that great confusion then surrounded the whole subject of phthisis. As Krause puts it: "At the time there were no germs of disease known, though the infectious or contagious nature of many diseases such as syphilis, measles and small-pox was recognized and the infecting agent was generally called a virus."

The eighteenth century was notoriously the age of methodism. In 1735 Linnaeus classified plants in his "Systema Naturae", and animals in the tenth edition, 1758, of the same work. Although it is often forgotten, Linnaeus was also a physician and classified diseases in his "Genera Morborum", 1763. His "Sexual System" of plant classification was shortly altered and expanded by Adanson and again by de Jessieu and these systems were authoritative for their time and place until superseded by the morphologic classification of the Geneva botanist de Candolle. The botanical systems as well as the scheme of nosology of Linnaeus all aroused the greatest interest in medical men and stimulated them to attempt further classification of disease. "The system of de Candolle", according to Garrison, "was the basis of the curious arrangements of pathologic phenomena which were made by Schönlein, Canstatt, Fuchs, Rokitsansky and other members of the German "Natural History" school in the early part of the nineteenth century". We thus find de Sauvages in his "Nosologia methodica", 1763, classifying diseases as if they were zoological or botanical specimens, subdividing them into 10 classes with 295 genera and 2,400 species. As might be conjectured, phthisis was for purposes of classification perhaps the most intriguing of all diseases. Sauvages names 20 different kinds of phthisis, of course including a motley and absolutely unrelated collection of pulmonary disorders. As time passed, certain maladies were more or less properly identified and for one reason or another excluded from this list. Antoine Portal (1809) reduced the number of kinds of phthisis to fourteen and G. L. Bayle (1810) to six. To Bayle, like Bichat, Baillie, Laennec and Louis, both student of tuberculosis and himself a victim of this disease, scientific medicine owes a great debt. Al-

though he retained in his list a few diseases like bronchiectasis, cancer of the lung and anthracosis which later required the acumen of a Laennec to exclude, nevertheless his contribution to the scientific knowledge of the progress and development of tuberculosis was of the first order. Laennec said of him: "What M. Bayle did see, he saw superlatively well". Now, Laennec and Bayle did not use the microscope, indeed these were not in general use until after 1840; up to this time pathologists relied chiefly upon naked eye appearance. It was Villemin who supplied the first practical test for the determination of the tuberculous nature of suspected material, the reproduction of tubercle by animal inoculation; Koch in 1882 supplied a simpler test, the demonstration of the bacillus by staining methods and Langhans in 1877 supplied the histological method by calling attention to the diagnostic importance of the characteristic giant cells in tuberculous tissues. In the absence of these criteria, it was impossible for medical men to agree on a definition for either tubercle or phthisis.

Originally, the term tubercle was applied to the small nodule, the well recognized tubercle of today, later, the caseous matter which formed in some of the tubercles was considered the essential and characteristic feature of tuberculous matter. Consequently, in the category of tuberculosis was placed every disease in which was found caseous matter, or something more or less remotely resembling it. Almost any morbid product, such as cancerous tissue, old blood clots, collection of pus, etc., might undergo this tubercular metamorphosis. Flick summarizes Villemin's views on this point as follows: "In seeking to place limits on tuberculosis one went beyond them and when one had wished to associate with this disease the lesions which belonged to it even though they did not have the form of nodules, one was led to attribute processes to it which had nothing in common with it." Even the greatest authorities of the times were not in accord. In contradistinction to Bayle and Laennec, who had lifted tuberculosis out of the category of inflammatory diseases, who thought tuberculosis identical with phthisis and due to the formation in the

lungs of something which was not there before, Virchow, greatest of pathologists, insisted upon the local and inflammatory origin of tubercle and considered phthisis, tuberculosis, scrofula and lupus separate diseases. Virchow also thought cavity formation and ulceration of the lungs were frequently not tuberculous, that many neoplasms undergo tubercular metamorphosis without becoming *tubercle* and that tubercular exudates have no specific qualities. Virchow believed in the duality of tubercle, Laennec in the unity of tubercle and consumption. "The greatest danger to which a consumptive is exposed is to become tubercular", the oft-quoted epigram of Felix von Niemeyer betrays the typically erroneous conception of the ablest men of the times. Niemeyer recognized only one species of tubercle, the miliary tubercle, and only one form of tuberculosis, miliary tuberculosis. Laennec was so intent upon his great work of correlating the auscultatory phenomena of diseases of the chest with the underlying pathologic condition that, in his all too brief existence, the problem of the communicability of the disease never captured his attention. As a matter of fact Laennec doubted the contagiousness of tuberculosis. It was quite generally agreed that tuberculosis developed spontaneously in predisposed soil and that the tendency was usually inherited but under certain undetermined conditions predisposition might be acquired. In this period then, "before the discovery of the bacillus", as Krause puts it, before the discovery of a reliable criterion of what was or was not tubercle, great confusion was natural, false conceptions inevitable.

On this scene steps Villemin, and quietly makes his startling declaration that tubercle is a specific disease to be classed with syphilis and glanders. To accept this, the scientific world must practically reverse itself, and this the scientific world was reluctant to do. The Committee appointed, according to custom, by the Academy to examine Villemin's work rendered an unfavorable report. Colin, the Chairman of the Committee repeated the experiments but concluded that the virus did not multiply itself at the point of inoculation, later to become generalized, as Villemin as-

served, but on the contrary, that solid particles contained in the inoculated tuberculous matter were absorbed and disseminated through the usual channels, after the fashion of Virchow's new and popular theory of embolism. Straus says: "Colin's experiments poorly executed and erroneously interpreted started the controversy which raged for many years over Villemin's work". However, although opposition was almost uniform in the Academy, it was not long before Villemin received confirmation from certain im-

verified Villemin's work in every particular and in a fashion to remove all possibility of doubt of the specificity of tuberculosis and the communicability of the disease. After recording his ingenious experiment of inoculating the anterior chamber of the rabbit's eye with the tubercular virus, he wrote that Villemin's discovery was one "from which, if I am not mistaken, will date in the history of tuberculosis not only an incomparable advance but also a complete transformation of our mode of regarding the disease."

It is natural to suppose that Villemin's powers of observation and his technical skill were largely developed by his training under the old naturalist. Mougeot, and the botanist, Professor Fee. At any rate, it is perfectly evident that he was a most accurate observer and a very skillful technician. His success was due not a little to the great care and uniform accuracy with which he selected his material for inoculation. When he inoculated tubercle, he always reproduced tubercle and when he inoculated non-tuberculous material, he never reproduced tubercle. He was not deceived by superficial resemblances. He never confused true tubercle with pseudo-tubercle.

Robert Koch in his original paper announcing the discovery of the tubercle bacillus emphasized the importance of Villemin's work in the following words: "The discovery of Villemin that tuberculosis can be conveyed to animals has received as is well-known, many verifications but apparently also has met with well-founded opposition, so that until a few years ago it had to remain undecided whether tuberculosis is an infectious disease or not. Since then however, the inoculation into the anterior chamber of the eye, made first by Cohnheim and Salomonsen, and later by Baumgarten, furthermore the inhalation experiments of Tappenheimer and others, have established the transmissibility of tuberculosis beyond every doubt and for the future a place must be given it among the infectious diseases."

The essence of Villemin's work is comprehended in his own conclusions: "Tuberculosis is a specific affection. Its cause resides in an inoculable agent. Tuberculosis belongs

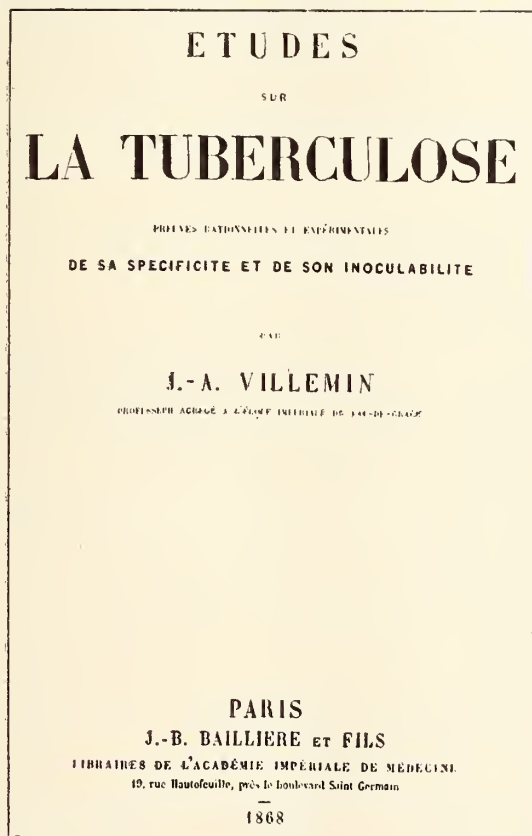


Fig. 3. Title page to Villemin's book.

portant outside sources. Edwin Klebs (1868) reproduced tuberculosis by inoculating tuberculous material and accurately pointed out the difference microscopically between true tubercles and the "foreign body" tubercles produced by the intravenous injection of non-tuberculous material, such as powdered substances, mercury and so forth.

Chauveau (1868), whom Krause calls the greatest veterinarian of his time, reproduced tubercle by feeding tuberculous matter to heifers.

Finally, Cohnheim with Salomonsen in 1877, repeating and amplifying his unsuccessful experiments of 1869 (with B. Fraenkel),

then to the class of virulent maladies and ought to take its place, in the nosologic list, by the side of syphilis but nearer to glanders-farcy''.

The originality of Laennec's conception of auscultation, the accuracy of his conclusions, the dramatic appeal of his sufferings and death from the same disease to whose recognition and conquest he contributed so much, the ever present stethoscope, mute reminder both of his brilliant, extraordinarily difficult achievement and our obligation to him, have all contributed to keep the name of Laennec and the details of his life and work fresh in our minds. No halo of romance surrounds the name of Villemin! He came and went

unobtrusively. Like Bayle, he saw superlatively well. He announced the specificity of the tubercular virus and submitted his proofs, models of precision and pregnant with revelation. To harsh criticism, with unruffled composure he replied with yet other experiments, equally elucidating. "I did thus and so", he says, "and I found thus and so". After him it was easy for Cohnheim to predict the imminent discovery of the bacillus. Today organized effort throughout the world to eradicate tuberculosis from the list of human maladies is founded upon the work of Villemin. In the history of the disease his name is linked for all time with those of Laennec and Robert Koch.

GOITER

(From Surgical Viewpoint)*

S. D. VAN METER, M.D.

With full recognition of how little we really know about goiter, how much there is to learn, and that I have nothing new to offer, it is with no little hesitancy that I have accepted your kind and complimentary invitation to discuss this subject from the surgical view-point. The perfection of technique in thyroid surgery that has been achieved in recent years,—thanks to the work of the large clinics—leaves us little to say from that angle.

In addition to considering the subject of goiter from the surgical view-point it is my desire to call attention to, and discuss some of the difficulties of diagnosis and treatment of the clinically atypical or borderline types. We have little or no difficulty of diagnosis, or in deciding what to do in the typical cases that we have seen before they have become hopeless wrecks from long standing thyrotoxicosis, the pathology of which is too well known to repeat. But what shall we do in the atypical case? How can we better recognize the early stages of transmission from the simple to the toxic type? How early in the process is operation

proper? How shall we handle the wrecks—the old cases that have tried everything but surgery? These are the questions that give us trouble and food for thought.

The history of medicine from the Hippocratic to the present era catalogues no disease to which human flesh is heir, in which so great a number of theories has been advanced as to its etiology, as that of goiter. The range of theories advanced extends from the sublime to the ridiculous, and the subject still offers the research worker a field unequaled in medicine. That simple goiter is chiefly if not wholly the result of iodine insufficiency seems conclusively established, but the explanation of the cause of the toxic types, either as transition from the simple, or developing independently is a different matter.

Delighted as we would be to have the solution, it matters little to the surgeon of the present which of the many theories wins the laurel wreath that awaits the fortunate one who solves the problem of toxic goiter.

With due respect to the advocates of the so-called conservative treatments of the disease aside from the simple type, goiter of the adult and toxic cases in the young is today surgical. It is unnecessary

*Read before the Pueblo Clinical and Pathological Society, Jan. 13, 1926.

Dr. T. D. Cunningham also read a paper on goiter from the medical viewpoint which will be published later.

to offer any argument to justify this position. Not that surgical results are ideal by any manner of means, but surgery in properly selected cases offers more hope, and accomplishes more good than any other known method of treatment. However, with our recognition of its shortcomings, let us live in hope that something may soon be discovered that will remove goiter from the surgical, and place it entirely in the medical list of diseases.

We, as surgeons, for the present, have a condition and not a theory with which to deal. Future enlightenment as to its etiology will reduce the number of cases that with our present meager knowledge are best treated by surgical procedure. Let us hope for the sake of suffering humanity that it will do more,—that with the enlightenment to come we may be able to prevent altogether those thyroid conditions that are surgical today.

The apathy of those in charge of public health, and the lack of interest many of the profession have shown in the prevention of goiter and the allied diseases by the systematic use of iodine is unexplainable, and is to be greatly deplored. The admirable work of Marine and Kimball has failed to convince public health authorities of the great boon the proper use of the drug assures. The laity has been more or less indifferent,—the medical profession has failed to grasp the proven facts, and carry out its part of the program, consequently the great good that should have resulted has not been accomplished. The advice of Marine and Kimball will in time be followed, but the slowness with which it is being done is inexcusable. It is the duty of every one who realizes the importance of the matter to lend his utmost efforts towards the universal, systematic use of iodine as a preventative of goiter.

A recent report (1) of 309 cases of induced hyperthyroidism by the injudicious use of iodine admirably supports the accuracy of the statement, that many of the medical profession fail to grasp the proven facts relative to the use of the drug in the prevention and treatment of goiter. Eighty-six

per cent of the series was taking the drug on the advice of a physician.

Insurmountable difficulties due to our ignorance of the true pathogenesis of goiter, have prevented the construction of any universally accepted classification; but after disposing of the rare types, which nevertheless should be borne in mind, the remaining cases which constitute the majority of those consulting the surgeon will fall into the following short classification:

- 1st. Simple.
- 2nd. Exophthalmic.
- 3rd. Adenomatous.

While this classification is open to criticism from many angles, it serves as a working basis. The simple goiter is not always simple. Exophthalmos is not the constant and outstanding feature of the exophthalmic, and the vast majority of the adenomatous are not adenoma from a strictly histological point of view. Defective as it is, this classification must serve us until our added knowledge enables us to make a better one. Fortunately for the surgeon, while he must ever keep in mind the rare types and the sub-classifications of the common types with which he has most to deal,—his final classification is a simple one, viz:—(1) Operative. (2) Non-operative.

In segregating his cases into these two classes he has little difficulty so long as they are typical, and fortunate again he is, inasmuch as the majority of the cases fall into this class.

When however, after careful examination and study, a case is found to be atypical it requires much judgment, experience, skill, and hard work to decide what is the proper course to pursue.

Surgery has no place in the treatment of simple goiter—so long as it is simple. But it is from this type that most of the toxic cases develop. It is in this transition period that the atypical cases are seen. What is the cause of the change? How and when are we to recognize the beginning and the stages of the transition? Can we advise any means, or become more skillful with those we have, whereby we can decide whether

the case is no longer simple, and if so, how early should we resort to surgery?

At present our most dependable guide is carefully taken metabolic rate readings. How much variance from the normal metabolic rate should govern? Or if that be close to normal, how near shall the atypical clinical syndrome approach the typical before we are justified in operating?

One school insists that without definite variance of the metabolic rate there is no perversion of the thyroid function and consequently no justification of operation. Another of equal prominence takes the position that many of the **functional** cardiac conditions frequently associated with indefinite neuro-mental symptoms suggestive of hyperthyroidism, but with near normal metabolic rates and lacking marked demonstrable thyroid abnormality, are the result of perverted thyroid function, and for want of a better name designates such condition as "dysthyroidism." The former school feels that the latter is operating cases of hysteria, **pure and simple**, that the good results claimed could be achieved by any other operation accompanied by suggestion of cure.

That that protean malady, hysteria, can and does mimic the syndrome of all diseases cannot be disputed. But it is also true that many, if not all cases of hysteria have some organic basis. When we stop to think of how intimately the thyroid is associated with the emotions, may it not be well at times to think of hysteria as "thyrosteria" and justly remove the stigma that the poor old uterus has borne these many years? I am not claiming that any connection between the thyroid and hysteria has been demonstrated, but simply make the suggestion for your consideration. Nor do I wish you to infer that I advocate thyroidectomy for hysteria.

However, if we are to accomplish the best end results, we should not relax our desire to operate the atypical cases of goiter that experience and investigation prove should be operated, because they do not present classical syndromes.

If we were postponing appendectomies until confronted with the sad picture of the

advanced pathology of that disease, what would our end results be, compared with those achieved by the now accepted practice of early operation? Are we at present waiting too long in some types of goiter before resorting to operation? If so, in what cases should we operate earlier? By what means are we to decide? These are the questions that confront us, and only future knowledge gained by investigation and experience will enable us to answer.

Personally, I feel that we are allowing too many cases, particularly of the adenomatous type to go too long before operating. I believe there are certain atypical cases that should be operated in which the metabolic rate remains practically normal, consequently it is wrong to rely solely on that test. In such cases we are compelled to depend on the clinical history and extended observation. As in all instances where radical action is open to question we should at least not operate until we have exhausted every means to reach a correct diagnosis, or tried other means of treatment.

A case of supposedly simple goiter that is made worse by small doses of iodine, although no adenoma can be found by palpation, should be strongly suspected of being adenomatous. Likewise, in all indefinite cases one should suspect exophthalmic goiter when tachycardia and other symptoms of Grave's syndrome, be they ever so atypical, are relieved by the drug.

Too great a number of atypical goiter cases are benefited by thyroidectomy to have been "pure hysteria". In many, small adenomata will be found post-operative that were not demonstrable pre-operative, and histological signs of early exophthalmic goiter will be frequently reported from the laboratory in these atypical cases—call them dysthyroidism—early toxic goiter—or what not.

In others the macroscopical and the microscopical findings are those of simple goiter, but when one sees such cases improve in health and their symptoms disappear, he is relieved somewhat of the guilty feeling that he has made a mistaken diagnosis and performed an unwarranted operation. More-

over these experiences make him wonder if laboratory findings are always dependable and are really the **last word** in the diagnosis of thyroid pathology.—“By doubting we come to truth”.

That surgery is but a part of, and has its limitation in the treatment of goiter must be kept constantly in mind; else our enthusiasm, born of experience with successful cases, will carry us beyond that limitation and bring discredit upon justifiable surgical procedures. However, it is not right in the treatment of any disease—that the wrecks and failures of unsuccessful methods are the only cases in which the merit of surgery is to be tested. It behooves us to approach the line of surgical limitation cautiously, but if through experience it is shown that by operating earlier we lessen the number of unfavorable cases of goiter that come to us later, such practice should be classed as conservative instead of radical surgery. In my opinion a parallel to the history of appendectomy exists today in the surgical treatment of goiter.

Which is more culpable, to remove an occasional appendix that its possessor might carry to his grave, though he live to be a hundred years old and die from some other cause; or to postpone all appendectomies until they become life-saving procedures? Likewise, may it not be better to occasionally perform thyroidectomy in simple goiter rather than wait in every case for the **unmistakable** syndrome of thyrotoxicosis?

All adenomatous goiters, and many thought to be simple should be considered surgical, as the vast majority of them sooner or later become surgical. It is safe to predict that unless some great discovery in the therapy of the disease is made in the future, the accepted practice will be earlier operation in the mild and atypical types, instead of waiting as long as we do now.

In the adenomatous cases, surgery, if resorted to early, is most satisfactory. Unhappily, it is in this type that the surgeon sees so many of those human wrecks, the neglected cases of long standing thyrotoxicosis, frequently beyond the pale of cure. The popular idea exists in the minds of the

laity, and often, I regret to say, in the minds of many of our profession, that the so-called non-toxic adenomatous goiter, unless causing pressure symptoms is best let alone. This is wrong. The adenomatous goiter, be it ever so inactive is a potential bomb that frequently explodes when least expected. Especially is this true when diagnosed as simple goiter and an ill advised course of iodine is prescribed. That iodine has a place in the therapy of simple goiter in the adult cannot be questioned. That place, however, is not very great and its injudicious administration in adenomatous goiter, thought to be simple, unquestionably has done and is still doing much harm. It is well to remember that there are many cases of adenomatous goiter that are difficult by physical examination to differentiate from the simple type—and even in the latter many believe that it is possible by administering iodine to induce hyperthyroidism. With this I am not ready to agree. That it will frequently induce hyperthyroidism in the adenomatous type is well established; but in the simple goiter? No! If it would, how does it give us the desired temporary abatement of the symptoms with which we have to deal in the exophthalmic type? It is more logical to conclude that an unrecognized dormant adenomatous condition existed and the iodine caused it to become toxic; or if a genuine exophthalmic condition followed it was coincident, and the amount of iodine given was insufficient to be effective. So strong is my conviction on this point, that I believe it will be found that the case of supposed simple goiter which is made worse by the administration of iodine, is generally adenomatous; while the one that is made better is a simple goiter, or perhaps an early exophthalmic.

Too many of the profession have not awakened to the fact that when there is any suspicion of existing adenoma, iodine therapy is contraindicated, or should be administered with great caution. That iodine would aggravate the symptoms of hyperthyroidism in some cases of goiter and relieve them in others has been recognized for years; but it remained for Plummer to show that it was

harmful in the adenomatous, and beneficial in the exophthalmic type. His explanation of this apparent paradox is probably correct. This clinical fact alone tends to make one believe that the hyperthyroidism of exophthalmic goiter is different from that seen in the adenomatous, and that the former is a separate and distinct pathological entity.

The arbitrary rule laid down by one of the leading clinics that adenomata not causing constitutional symptoms should be let alone until the patient is twenty-five years of age, has a good foundation. Like all other arbitrary rules, it is open to criticism, and should not be followed blindly. It is true that the removal of adenomata at an early age frequently results in the necessity of secondary operation. Patients of this type are prone to have the toxic symptoms develop so insidiously that they do not consult their doctor until they have been mildly toxic for months and even years. Too frequently irreparable damage has been done to the myocardium, the result of mild but long standing thyrotoxicosis. Surgery works wonders in this type of goiter, but it is too much to expect in the cases of long standing adenomata the almost certain good and complete cure an early operation would have accomplished. These adenoma "goiter wrecks"—and the extremely toxic exophthalmic cases are the dangerous and desperate ones that we are not anxious to encounter. It is to be hoped that in the future by better management of the early stages of all types they will grow less in number. Fortunately, even in the bad exophthalmic cases, iodine usually controls the storm temporarily and permits of successful thyroidectomy.

Exactly how it accomplishes this is not known, but it has been demonstrated (2) that it changes the histological picture of the exophthalmic back to that of the simple type. Unfortunately it does not effect a cure, and double partial lobectomy so far gives the best results in the majority of cases of this type. The age of the patient and special features of the case determine to a large degree the amount of gland tissue that should be left. The tendency to leave

less than formerly is proper. I am convinced that in the past we have left too much. Nevertheless it is far better to make this error than to remove too much.

The fact that we have recurrence of toxic symptoms in this type of goiter in some cases, when a very small amount of thyroid tissue has been left is very suggestive that the fundamental cause of exophthalmic goiter is not primarily in the thyroid and may be far removed from that gland. Did I hear some one say, "Autonomic imbalance"? We will leave that question to the research worker.

In the management of bad cases of neglected adenomata we have no such aid as iodine is in the exophthalmic. Rest and digitalis in this type are our only hope,—and for some reason unknown these should not be prolonged.

In both types an important factor essential to success is that of anesthesia. Gas-oxygen of the general class, alone or combined with local is popular and very satisfactory aside from cost. My experience has convinced me that local anesthesia obtained by pre-operative morphia and hyoscine and the infiltration of $\frac{1}{4}$ to $\frac{1}{2}$ per cent novocaine is the safest and best method of anesthesia in all goiter surgery.

The factor of added safety is greater in proportion to the severity or the gravity of the case. The great aid derived from co-operation of the patient made possible by local anesthesia, especially in the substernal cases is difficult to estimate, and cannot be too greatly emphasized. Furthermore no goiter suitable for operation can be removed under any other method better or safer than it can be under local anesthesia. Local anesthesia, therefore in my judgment is the method of choice.

I cannot agree with the custom of "slipping up on" goiter patients and by so doing relieve them of the shock of anticipation of the ordeal of operation. Of course such a plan is out of the question when local anesthesia is used, but even when a general anesthetic is administered it requires a well organized hospital force to carry it through successfully. I dare say, many times if the

truth were known, it has been the surgeon and not the patient who has been deceived. The first important step in the management of a goiter is to secure the absolute confidence of the patient. To this end nothing contributes more than honest and frank statement of facts. If you have the absolute confidence of your patients and they know they will be told the day before the operation, they will worry less than if any atmosphere of mystery surrounds them. A fair sized dose of morphia the evening before operation generally insures a good night's sleep and the pre-operative hypodermic keeps them in good shape until the ordeal is over. The fact that they have been convinced that the operation under local anesthesia will add to the factor of safety is a great help in bolstering up their morale during the operation.

The operative technic of thyroidectomy, as has been stated, has been so well standardized as to require little or no description, but I would like to emphasize the importance of sharp dissection, thorough hemostasis, and the gentle handling of tissues encountered. The last named is necessarily observed when operating under local anesthesia.

It seems useless to dwell on the advantages of good team work and well trained assistants, but their value is too frequently underestimated.

The Kocher or necklace incision is applicable to most any type of goiter, but the remaining steps of the operation should be governed by the pathology encountered. Crotti's teaching of shaping the operation to the case is the proper one to follow.

The post-operative treatment may be summed up in the following: Morphia for pain and support of the heart, measures to counteract dehydration, and iodine in combating toxicity in the exophthalmic cases.

The usual improvement that follows thyroidectomy frequently causes both doctor and patient to forget that the operation is but a part of the treatment of goiter; and no matter how great the post-operative improvement has been, patients should con-

tinue under medical care and observation for a long time.

Last, but not least, we should impress upon patients the importance and necessity of prolonged rest and freedom from work and worry after operation if good end results are to be accomplished.

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- (1) Kimball, O. P.—Induced Hyperthyroidism. *J. A. M. A.* 85—1709 (Nov. 28) 1925.
- (2) Rienhoff, W. J. Jr.—Histological changes in Exophthalmic Goiter by administration of iodine.—*J. Hopkins Bulletin*—285 (Nov.) 1925.

DISCUSSION

H. E. Abrams, Trinidad: There is a goiterous district in and around Trinidad. Along the streams of the district goiter increases as the stream is descended. I have met with more cases at the lower parts of the river than the upper and believe greater contamination accounts for the increase.

Even in simple colloid goiter the secretion of the thyroid is a perverted secretion and not a normal one and patients seem to do better after partial resection when put on thyroid extract or iodine than they do when similarly treated without operation.

A word about X-Ray treatments which Dr. Cunningham mentioned. My opinion is that it should be used only after operation on those patients whose pulse remains rapid and who have other symptoms which indicate that an insufficient amount of gland tissue has been removed.

George E. Rice, Pueblo: These papers are hard to discuss because I find no fault in them. I would like to emphasize, however, two points brought out by Doctor Van Meter; one is the use of proper anesthesia in thyroid surgery. You will recall that the mortality in thyroid surgery decreased markedly with the incidence of two factors; one that of local anesthesia or combined local and gas oxygen anesthesia which effects mortality in all types of thyroid surgery. The second is the use of Lugol's in cases of exophthalmic goitre. Now the mortality in thyroid surgery generally has been reduced and the reduced mortality in cases other than that of exophthalmic goitre cannot be ascribed to Lugol's solution. Therefore, it is my opinion that more credit should be given to local anesthesia than has heretofore been accorded.

M. O. Shivers, Colorado Springs: After hearing the very interesting and instructive papers of Drs. Cunningham and Van Meter I fear that there is but little that I can say that will be of interest to you. You are to be congratulated for devoting one meeting to the study of diseases of the thyroid. The subject of goiter is very important, first, because of its wide distribution throughout the states, second on account of the unrecognized, irreparable damage to our population, and third the positive death rate therefrom. Most of these deaths, however, are catalogued as heart disease, insanity, etc. Goiter has always been an interesting subject to me, particularly the etiology. Our observations have led us to the bacterial origin of thyroid disease. No particular organism has been the causative factor from our way of thinking. It could be streptococcus, colon, or any other type. We be-

lieve in the selective action of bacteria as emphasized by Rosenow. If we accept this theory then any bacteria might be the causative factor in family groups of cases. There must be some reason why the daughters of goiterous mothers develop thyroid disease. For example, a mother suffering from goitre may have a colon vaginitis. She bathes and cares for her child, in fact there are many ways she could transmit the infection to the child. Insufficiency of iodine in water and food supply may be only a contributory cause. Chlorine in water supply renders the colon bacillus avirile. Why not a weak solution of iodine in the blood be Nature's method of safe-guarding the thyroid? It may be possible that this weak dilution of iodine renders the bacteria impotent. Iodine properly administered prevents goiter, also greatly benefits the more acute types. Treatment is both medical and surgical. Medical only as a pre-operative measure and post operative, care for the damaged viscera. Surgical as a curative measure. I do not think any of us have grasped the suggestion fully, of administering iodine to pregnant mothers. We know its value but as a profession make little use of the information. Dr. Van Meter touched on adenoma. It has been exceedingly difficult for me to differentiate simple from adenomatous goiter. I refer to the type with ill defined capsule, not the one which is nodular with a well developed capsule. We would like to discourage the advice to report

at intervals for inspection in adenoma without hyper-thyroidism. It is ill advice and most dangerous. Many take it as a statement that no operation is necessary. It is more serious than to advise a woman to report from time to time when she has a tumor in the breast, in fact more harmful, as adenoma is many times more frequent. In the operation field we would like to condemn ligation as an unnecessary procedure. It carries a positive, unnecessary mortality. We now know other methods safer and more efficient, eliminating the death rate following ligation.

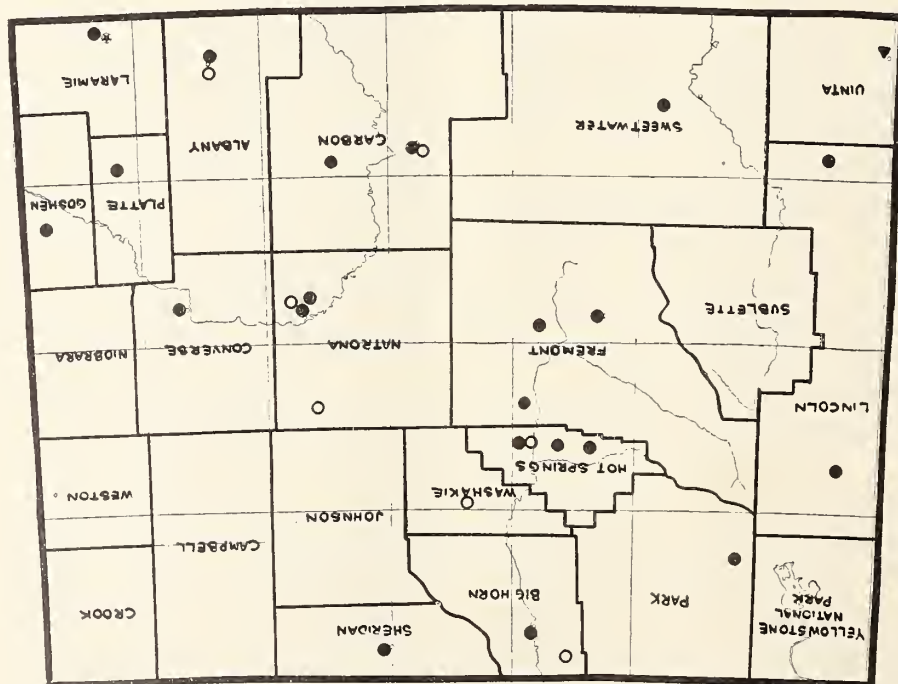
W. E. Buck, Pueblo: Goiter is interesting from a Public Health standpoint, only when it is found to be quite prevalent, and especially among children, in a community. In order to obtain this information it becomes necessary to make a survey of a reasonably large number of children.

Before attacking the problem it is good practice to find the iodine content of the water supply.

As regards adult population the problem becomes more a family physician problem, except the educational feature which the Public Health Department should carry on.

With regard to children, the situation is different, the work can be carried on through the schools with very good results.

HOSPITAL MAP OF WYOMING



Courtesy of Journal of the American Medical Assn.

SYSTOLE

The natural measure of this power (character) is the resistance of circumstances. Impure men consider life as it is reflected in opinions, events and persons. They cannot see the action till it is done. Yet its moral element pre-existed in the actor, and its quality as right and wrong was easy to predict.—Emerson.

“Perhaps no sin so easily besets us as a sense of self-satisfied superiority to others. It cannot always be called pride, that master sin, but more often it is an attitude of mind which either leads to bigotry and prejudice or to such a vaunting conceit in the truth of one’s own beliefs and positions, that there is no room for tolerance of ways and thoughts that are not as ours are. To avoid some smirch of this vice is beyond human power; we are all dipped in it, some lightly, others deeply grained”.—Chauvinism in Medicine.

Believe me when I tell you that thrift of time will repay you in after-life, with a usury of profit beyond your most sanguine dreams; and that waste of it will make you dwindle alike in intellectual and moral stature, beyond your darkest reckoning.—W. E. Gladstone.

Justice is as strictly due between neighbor nations as between neighbor citizens. A highwayman is as much a robber when he plunders in a gang, as when single; and a nation that makes an unjust war is only a great gang.—Franklin.

The law of worthy life is fundamentally the law of strife. It is only through labor and painful effort, by grim energy and resolute courage, that we move on to better things.—Theodore Roosevelt.

Justice is the only worship. Love is the only priest. Ignorance is the only slavery. Happiness is the only good. The time to be happy is now. The place to be happy is here. The way to be happy is to make other people happy.—R. G. Ingersoll.

DIASTOLE

Two well known Denver doctors visiting in B. C., send the following doggerel, which evidently seemed humorous to them at the time:

Four and twenty yankees,
Feeling very dry,
Went across the border,
To get a little rye.
When the rye was opened,
They all began to sing:
“To h—I with Mr. Volstead,
‘God save the King.’ ”

Mark Twain concluded that, because more people died in bed than anywhere else, the bed was a dangerous place to go.

A journal devoted to the spirit of organization concludes that

“Doctors must fail to take their own medicine for, according to the American Medical Association, the death rate of doctors is 17.22 per cent, while the death rate for the country as a whole is only 11.9 per cent.”

A well known health journal warns its readers that those who think the climate of Colorado is beneficial for tuberculosis should consider that the death rate from tuberculosis is higher in Colorado than any other state of the Union.

The Editor, Colorado Medicine:

Dame Fortune has permitted me, a layman, to see a copy of the July “Colorado Medicine” and the following from an advertisement on the front cover has interested me, to say the least:

“DOCTOR—when you want a
RELIABLE AID TO INDIGESTION, ETC.”

While I realize that indigestion is probably one of the principal sources of income to the medical profession, I arise to inquire whether we patients, grateful or otherwise, cannot be depended upon to furnish, through our gustatory and anti-prohibition indiscretions, a continuous supply of interesting cases, making any “aid to indigestion” entirely unnecessary?

Signed.

NEWS NOTES

Dr. F. C. Buchtel has returned from a month's trip in the East.

Drs. S. D. VanMeter, Robert G. Packard and T. D. Cunningham have returned from a successful fishing trip.

Dr. Horace G. Wetherill writes that he will be passing through Denver this summer on way to the Western Surgical Society which holds its meeting in Duluth.

Dr. Ralph C. Mills, formerly professor of Pathology at the University of Colorado, writes that all members of his family have practically recovered from injuries sustained in automobile accident a few weeks ago.

LADIES' AUXILIARY

The Ladies' Auxiliary of the Colorado State Medical Society will meet for their annual luncheon Wednesday noon, Sept. 22nd. The officers are hoping for a large attendance.

MAIL DIRECTORY INFORMATION CARD PROMPTLY

During the month of June, every physician in the state should have received a directory information card. Everyone is urged to fill out and return the stamped card regardless as to whether he or she has changed their residence or office address.

This information will be used in compiling the Tenth Edition of the AMERICAN MEDICAL DIRECTORY, now under revision in the Biographical Department of the Association. The directory is one of the altruistic efforts of the Association and is published in the interest of the medical profession which means ultimately in the interest of the public. It is a book of dependable data concerning the physicians and hospitals in the United States and Canada.—American Medical Association.

X-RAY EXHIBIT AT STATE MEETING

Because of the favorable comment which was excited by the x-ray exhibit at the meeting last year in Colorado Springs, an attempt will be made this year to have an equally interesting if not more interesting exhibit and also to place it in the main auditorium instead of the basement as before. It is desired that this exhibit be participated in by anyone who has films or plates to show which will be interesting, unusual or of special scientific value. Those who desire to make such an exhibit will kindly consider this an invitation to do so. It will be necessary that anyone wishing to participate notify the undersigned promptly so that space may be reserved. Please specify the number and size of the films to be shown.

S. B. CHILDS, M.D.,

Metropolitan Building, Denver.

(In charge of exhibit for the Committee on Scientific Work.)

Roll Call

The Annual Roll Call this year, to enroll members of the American Red Cross for 1927, will be held as usual from Armistice Day to Thanksgiving, November 11 to 25.—The American Red Cross.

MEDICAL SOCIETIES

SAN LUIS MEDICAL SOCIETY

On July 10th a meeting of the San Luis Valley Medical Society was held at Saguache, the society having as guests the executive officers of the Colorado State Medical Society, together with a number of members of the Arkansas Valley Medical Association. During the course of the evening an invitation was extended verbally by the Arkansas Valley Association to the San Luis Valley society to join the larger society and take part in their semi-annual proceedings.

A scientific program was carried out and this was followed by a business meeting at which an election of officers took place. The program was furnished by Dr. B. B. Blotz, Rocky Ford; Dr. G. W. Larimer of Salida and Dr. J. B. Crouch of Colorado Springs. The subjects respectively were, "Medical Economics", "Fractures", and "Differential Diagnosis of Chest Conditions". Dr. Blotz' paper had to do especially with the encroachment of the Government upon the functions of the medical profession and numerous acts of Legislature and Congress which tend toward paternalism and bureaucratic government, especially with reference to the tendency toward state medicine. In this connection emphasis was placed upon the necessity of medical organization and its value in combating harmful organized efforts from other sources. Dr. Larimer in his discussion of fractures dwelt largely upon the industrial compensation aspects of fracture work and correlated his subject with the paper of Dr. Blotz. Dr. Crouch gave a very masterly, cursory review of differential points in chest diagnosis with exhibition of numerous x-ray plates. He was assisted by Dr. Downing of Colorado Springs who exhibited pathological specimens of many of the cases illustrated by Dr. Crouch.

The election of officers resulted as follows: President, I. L. Gotthelf; Vice-President, A. B. Gjellum; Secretary, P. K. Dwyer; Delegate, L. L. Herriman; Alternate, W. N. Hurst.

The meeting began with a dinner at the Saguache Hotel which was very much enjoyed. A number of the wives of doctors were present and they were nicely taken care of with a card game which proceeded while the society meeting was in progress.

A list of those present follows: Drs. Downing, Crouch, Boyd of Colorado Springs; Dr. Burkhard of Pueblo; Drs. Jackson, Parker, Rhone, Curfman and Larimer of Salida; Dr. Blotz of Rocky Ford, Dr. Stephenson of Denver; Dr. Ralph Mendelson of Siam; Drs. Gotthelf, Shippey and Pugh of Saguache, Drs. Dwyer, Herriman and Masten of Alamosa; Dr. Gjellum of Del Norte; Dr. Kortright of Bonanza; Dr. Hurst of Center.

Several members of the dental profession from the various towns were guests of the society at the dinner.

F. B. S.

SAN JUAN MEDICAL SOCIETY

The San Juan Medical Society had a special summer meeting on July 10th with a dinner at the Strater Grill. Guests of the society were Dr. Philip Hillkowitz and Dr. John R. Ranson, of Denver. Dr. Hillkowitz gave a talk on pathology and on hospital standardization, and Dr. Ranson gave an illustrated talk on the radiation treat-

ment of cancer. Dr. A. J. Nossaman of Pagosa Springs was also on the program with a talk on medical ethics. A part of the business transacted was the appointment of Dr. E. E. Johnson to take charge for the society of medical relief in case of disaster, this being in line with the movement now on foot in the American Medical Association to organize for quick medical service in case of disaster, to tide over the emergency period until regular relief organizations shall have had time to get into operation.

H. A. LINGENFELTER, Secretary.

COLORADO GENERAL HOSPITAL

Commencing July 1 the Clinic hours for the Out-patients' Department will be changed from 12 to 2, to 8 to 10 a. m. The former hours have been observed for years, but all during this time there has been a feeling among certain members of the Staff that other hours would prove more satisfactory. At no time however, was there unanimity with regard to other hours, and consequently those from 12 to 2 have remained, but under protest. A questionnaire on this subject of hours showed a marked variation in the preference of the hours. But due to the persistent comments on the part of many Staff members the Hospital authorities decided to try other hours, and selected the early morning. There will be a certain amount of confusion no doubt, but the response of the Staff to this change will be of interest to those in charge:

Number of patients in hospital June 1.....	78
Number of patients admitted during June (newborn included in above).....	158
Total number of patients admitted during the month.....	150
Number of patients discharged during June.....	143
Number of patients dying in the hospital.....	7
Autopsies performed.....	4
Patients in hospital July 1.....	87
Average number of hospital patients daily.....	88
Number of counties represented.....	16

The usual activities of this institution are embodied in the data as given out in the above outline. The attendance as given is well up with the average of the past months, and the larger percentage of these patients are in the institution for only a few days.

The Physio-therapy Department started out auspiciously with a total of 25 patients for the month and 273 treatments given. Radiant heat, ultra violet rays, massage and diathermy predominated in the order named. This well equipped Department is expected to prove a valuable addition to the institution.

The Out-patient Department has been busy as in the past months. During the month 3,047 patients have been admitted to the various departments, or an average of 117 for each clinic day. Of these, an average of 16 were new cases each day. In addition to 427 new cases admitted during the month, 122 were refused admission, or 22 per cent of those who applied. The principal reasons for refusal were, ability to pay a physician, and under the care of a physician at the time.

The Superintendent wrote to 52 physicians with respect to patients who had been under their care, and had applied for admission to the clinic. Sixty-five per cent replied, but the 35 per cent who failed to answer; (and a stamped return envelop was enclosed with the communication,) makes it difficult for the authorities to know how to act with regard to these applicants. A prompt reply

to these inquiries will aid greatly in keeping out those individuals not entitled to free care.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

This institution has in the past month maintained the average amount of activity as in the recent months. The patients as has been stated before do not remain for any length of time, and there are on an average as many discharged during the month as admitted.

For June the Director's Office has given out the following data which covers the matter of patients under its care, and which is of interest to the physicians of the state at large:

Patients in the hospital June 1.....	43
Patients admitted during the month.....	33
Patients discharged during the month.....	32
Patients dying in the institution.....	3
Autopsies.....	3
Patients in the hospital July 1.....	41
Counties represented.....	14

The medical personnel of this hospital feels proud of its autopsy record, the last two months it has been 100 per cent, and in addition much of value has been learned in this manner in the past few months from several cases. And no matter whether the original diagnosis has been verified or disproved, this is not as important as the determination of the correct diagnosis.

The Psychopathic Out-patients' Department continues to grow and in the last six months has approximately doubled in attendance. With this increase in size has of course come an increase in the other activities, as the out-patients' visits, and the social service follow-up work, of so much importance in cases of the type seen in such institutions.

In addition to the routine activities, research work is being carried on in neuro-pathology, especially with respect to new, and to original staining methods. Also time has been devoted to the development of a neuro-pathologic museum, and the number of specimens which have thus far been prepared and mounted will well repay any physician for the time spent in their study.

E. R. MUGRAGE.

ARKANSAS VALLEY MEDICAL ASSOCIATION

Pueblo Golf and Country Club, Pueblo, Colo.,
July 24, 1926

PROGRAM

- "Problems of Diagnosis in the United States Veterans' Bureau".....Dr. R. C. Cook
Fort Lyons, Colo.
- "Some Points in Abdominal Diagnosis with Roentgenograms".....Dr. J. N. Hall
Denver, Colo.
- Medicine in Siam (illustrated with lantern and slides).....Dr. Ralph Mendelson
Bangkok, Siam
- "Why Physical Therapy".....Dr. Burton Baker Grover
Colorado Springs
- The Centenary of Laennec (1781-1826) illustrated with lantern slides.....Dr. Gerald B. Webb
Colorado Springs

American Board of Otolaryngology

The next examination given by the American Board of Otolaryngology will be held in Denver, Colorado, at the University Hospital on Monday, September 13, 1926. Application should be made to the Secretary, Dr. H. W. Loeb, 1402 South Grand Boulevard, St. Louis, Missouri.

BOOK REVIEWS

A Text-Book of Medical Diagnosis. By James M. Anders, M.D., Professor of Medicine, Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania; and L. Napoleon Boston, M.D., Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. Third Edition, Entirely Reset. Octavo of 1,422 pages, 555 illustrations, some in colors. Philadelphia and London: W. B. Saunders Company, 1925. Cloth, \$12.00 net.

In this present edition, the authors have retained the general plan of the previous editions, but have brought the diagnostic problems of each disease up to date. The book is a comprehensive and clear treatise on the multiple problems of medical diagnoses written from the clinical point of view and covering most of the diagnostic problems likely to confront the clinician. The authors appear to be true disciples of Hippocrates in that they indicate that clinical diagnoses are usually made from the information elicited by the primary senses rather than by the so-called modern methods; although no method has been omitted which adds to the fund of information of any given disease state. Repeatedly attention is directed that the older clinical methods often suffice for a correct diagnosis; although in obscure conditions the clinician must call into requisition the various instruments and methods of precision as the microscope, the stethoscope, the electrocardiograph, the chemical analytic methods, the roentgenograph, etc. Careful history taking and systematic physical examination must never be replaced by laboratory methods of whatever nature.

The authors have divided the problem of medical diagnosis into gross divisions of Diseases of the Respiratory System, Diseases of the Circulatory System, Diseases of the Digestive System, Diseases of the Urinary System, Acute Infectious Diseases, Animal Parasitic Diseases, Constitutional Diseases, Endocrine Disorders, and Disorders of the Nervous System; and under each group they have taken up separately each clinical entity belonging to that group. Each clinical entity is then discussed in a well planned manner, the authors apparently following a definite outline taking up the individual disease state under the headings of pathologic definition, clinical varieties, exciting and predisposing factors, symptomatology, physical signs, laboratory diagnosis, and differential diagnosis; and in many instances they give the differential diagnosis in a concise and succinct manner in parallel columns.

It is hardly fair to comment on what is not the evident purpose of the book, since this splendid text book is clearly labelled "Medical Diagnosis"; yet it is unfortunate that the authors have omitted the subject of treatment, for with their splendid grasp of the subject they could easily convert their work into a complete textbook on the practice of medicine which would be a greater help to the practitioner as well as to the student for whom it appears to be intended.

HARRY GAUSS.

The Principles of Anatomic Illustration Before Vesalius. An Inquiry into the Rationale of Artistic Anatomy. By Fielding H. Garrison, A.B., M.D. Paul B. Hoeber, Inc., New York, 1926. Price \$2.50.

This monograph covers an original research in the history of anatomic illustration from the earliest known figure representing the human frame, a limestone statuette of a nude woman of the quarternary period (40,000-16,000 B. C.) to the artistic drawings of Leonardo da Vinci of dissections of the 15th century A. D. It includes the consideration of the neolithic figurines excavated at Malta, the achondroplasia dwarfs of the gods of ancient Egypt, the faience figures of females, as of the Cretan mother-goddess found at Knossos, the celebrated sculptures of ancient Greece, picture series from medieval Ms, Aztec and Thibetan figures, all antecedent to the illustrations by Vesalius. The results of these diligent researches are assembled and treated in the masterly, learned manner characteristic of the author, and from the philosophical rather than historical point of view, with the object of demonstrating a theorem that the real content of artistic anatomy is not descriptive but ethnic morphology and pathology.

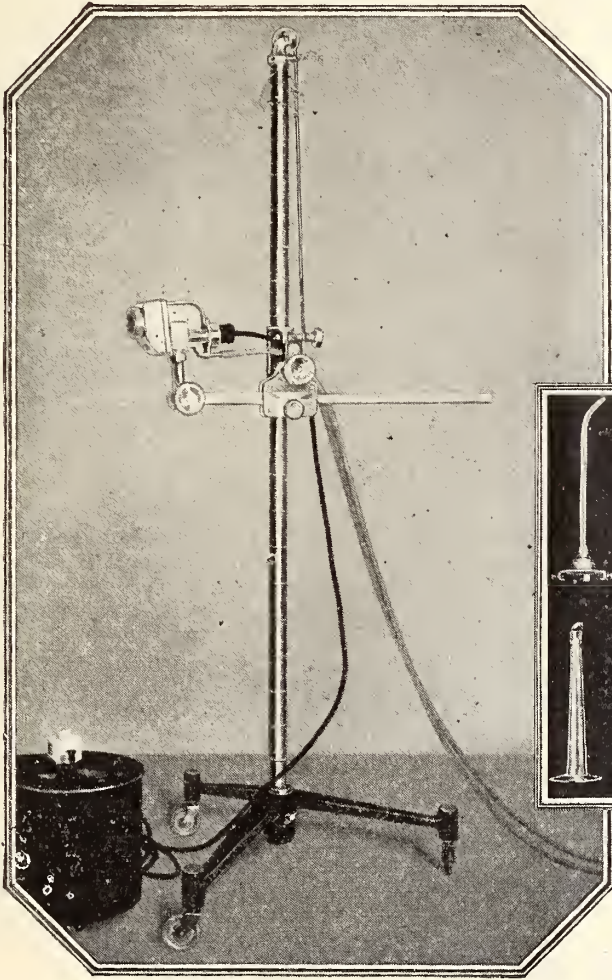
The work is unique in both content and treatment assembling for comparison the art of anatomic illustration of widely separated civilizations and periods of the world's history, and should be of the deepest interest to all of the rapidly increasing number of physicians who are devoting more and more of their leisure to the cultural aspects of medical history.

W. A. JAYNE.

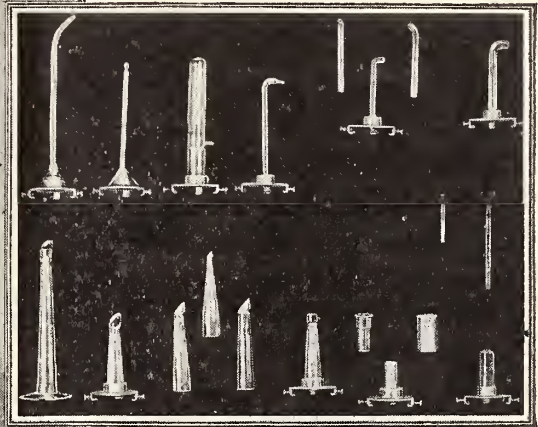
Thomas Sydenham, Clinician. By David Riesman, M.D., Professor of Clinical Medicine, University of Pennsylvania. Paul H. Hoeber, Inc., New York, 1926. Price \$1.50.

In this brief sketch, a memorial of the tercentenary of the birth of Thomas Sydenham recently celebrated, Dr. Riesman has drawn a most interesting picture of one of the great clinicians our profession has produced. The authority of the classical fathers of medicine, Hippocrates and Galen, had lasted for many centuries, down to the Renaissance period. Vesalius and Harvey were announcing important new facts that were destined to weigh heavily in the future progress of medicine but they had not yet been absorbed and understood. Many novel theories were, however, being proposed and exploited. Sydenham, first a Puritan soldier of the English Revolution and later a physician, having an eminently practical mind, discarded all theories and followed the method of Hippocrates of close bedside observation. An independent, rational thinker he drew his own conclusions and had the courage to put them into practice against all criticism. Sydenham soon became a great medical leader and his influence, especially on English medicine, continued until the scientific researches of the latter half of the nineteenth century developed a more accurate knowledge of the causes of disease and its prevention that led to the great revolution of all medical thought. The life and practice of Thomas Sydenham marks a step in the progress of medical history, and therefore should interest all physicians who would be acquainted with the medical leaders of the past.

W. A. JAYNE.



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Medical Education

The organization and teaching of individual departments is often excellent, but the whole instructional staff in no way act as an "educational unity." President Lowell of Harvard referred to this idea at Boston in March, 1925, when he used the simile of comparing medical education to a building consisting of a number of columns, in which each column (or department) was as perfect as it could be made, but without much regard to the part it played in the construction of the building as a whole. There is a lack of team-play in the education of the student in medical faculties. Many staffs have as fine a group of individual departments as can be found anywhere, but it is well known that no team of individual stars can compete successfully with one in which combination team play has been fully developed. The efficiency of medical education might be raised to a far higher plane by greater attention to the unity of their purpose.—E. Stanley Ryerson, Bulletin of the Association of American Medical Colleges.

Diagnosis of Tularaemia

The final diagnosis of tularaemia rests on the isolation of a culture of tularensis or on agglutination of a stock culture of this organism by the patient's blood serum. The latter is a reliable test and has been employed in the Hygienic Laboratory of the United States Public Health Service at Washington, D. C., for several years as a routine test of suspected serums submitted for diagnosis.—United States Public Health Service.

Phi Beta Kappa Gets \$100,000

John D. Rockefeller, Jr., has given \$100,000 to the Phi Beta Kappa fraternity, to be applied to the million-dollar Centennial Fund, which will be used to encourage scholarship by providing rewards, including an annual grand prize of \$1,000.—Kablegram.

MEDICAL SOCIETY OF THE MISSOURI VALLEY

The program planned for the Omaha-Council Bluffs meeting will consist of papers and lectures on various scientific and clinical subjects and clinics. Fully half of the time will be devoted to clinics given by men of national reputation. Among those who have already consented to appear on the program and hold clinics are: Dr. Hilding Berglund, Professor of Internal Medicine at the University of Minnesota, Minneapolis; Dr. Elliott C. Cutler, Professor of Surgery of Western Reserve University, Cleveland; Dr. Irving S. Cutter, Dean of Northwestern University College of Medicine, Chicago; Dr. McKim Marriott, Professor of Pediatrics of Washington University, St. Louis; Dr. E. C. Rosenow of the University of Minnesota, Mayo Foundation, Rochester, and Dr. Gabriel Tucker of the Bronchoscopic Clinic of the University Hospital, Philadelphia.

Negotiations are under way with several other men of equal prominence in their respective lines.

The program committee will make this meeting one that no up-to-date clinician can afford to miss. A complete program will be published in ample time. Reserve the dates now—September 15-16-17. Headquarters—Hotel Fontenelle, Omaha.

In 1925 there was more smallpox in the United States than in any other country in the world.

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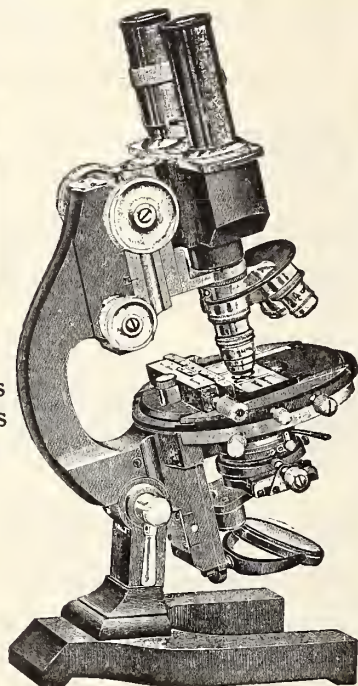
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TUNING IN

Rocky Mountain Spotted Fever

Observations upon Rocky Mountain spotted fever infection in the tick vector (*Dermacentor andersoni* Stiles) have shown repeatedly that if of two groups of hibernating adult ticks from the same infected lot, the ticks of one group were examined without feeding and those of the other after feeding, those of the fed group would show (a) a greater percentage of ticks in which rickettsia can be demonstrated, (b) a tremendous increase in the number of rickettsia in the individual ticks, and (c) a much higher percentage of infective ticks. In fact, in unfed infected adults the rickettsia associated with Rocky Mountain spotted fever are often very difficult, or impossible, to find by smear preparations, whereas in fed ticks of the identical lot they are usually very abundant.—Public Health Reports.

Work of the Sheppard-Towner Act

The Medical Woman's Journal is securing and will present to its readers definite data concerning the work being done in the several states of this country under the provisions of the Sheppard-Towner Act. The first article of the series will be found in this month's number.—Medical Woman's Journal.

Red Cross at Sesqui

The American Red Cross Society will have a highly attractive building at the Sesqui-Centennial at Philadelphia. In addition to its advertising features the building will be used as a first-aid station and emergency hospital, manned by nurses and personnel of the Philadelphia chapter.—Kablegram.

Tennessee Adopts Quarter Session Plan

It is reported that the trustees of the University of Tennessee have adopted the quarter system, whereby by continuous study the two pre-medical and four medical years of work can be completed in as short time as four and a half years. Under this system, any three quarters will be considered the equivalent of one college year.—National Board Bulletin.

Luther Burbank

All the world mourns the death of Luther Burbank, the coworker with nature, who, withered by age, died at Santa Rosa, Calif., on April 11th, amid the flowering fruits and blooms that he created for mankind's benefit. "Oh, doctor, I am very sick," were his last words, which he uttered to his physician, Dr. Joseph H. Shaw.

Luther Burbank has become a household name throughout the civilized world. Patience was the chief prerequisite to his success. With all that he had accomplished in plant life, yet he felt there was a still more important work than his own to be done by some one else who could breed a finer human race. "Inferior beings cannot be treated as if they were inferior plants," he said, "but if civilization is to endure, some way must be found to produce more of the fit and fewer of the unfit. Today we are little more than a field of wild weeds, in which, here and there, arises a superior type."

The honors paid to him for his achievements were richly deserved.—The Atlantic Medical Journal.

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SEPTEMBER, 1926

NO. 9



VINCENT JOHN KEATING
President Wyoming State Medical Society

VINCENT JOHN KEATING

Vincent John Keating, president of the Wyoming State Medical Society, was elected at the recent meeting held at Lander, Wyoming, July 23, 1926. He was born in Waukesha county, Wisconsin, September 10, 1885. His preliminary education was received in the public schools of Waukesha county and Milwaukee, Wisconsin.

Following in the footsteps of his father, Dr. John Keating, a graduate of Oxford, and a former surgeon in the English navy, the son entered medical college in the fall of 1905 and graduated from Chicago College of Medicine and Surgery in 1909.

Locating in Chicago, Dr. Keating served an assistantship of three years and was for five years in the Illinois Post-Graduate Clinic.

He was married September 27, 1911, to Miss Claire E. McKenty of Kingston, Ontario, and has five children. Came west to Colorado in 1915 for a vacation and decided to stay in the country.

Located in Sheridan, Wyoming, in 1916, where he has since been engaged in general practice, devoting considerable time to surgery. He has been active in local and state societies and was president of Sheridan County Medical Society in 1924.

E. W.

DENVER HOSPITAL CLINICS

Again we call your attention to a bulletin board erected by the Denver County Medical Society for the guidance of visitors and others. This board has been placed in the corridor of the Society Assembly Hall in the Metropolitan building. It will contain, as far as possible, a daily announcement of things of special interest to the various hospitals in the city. In addition to the announcements of time and place of medical and surgical work in the private hospitals, the board will bulletin clinics, ward walks and special medical procedures peculiarly adapted to the services of such institutions as Fitzsimons, the Colorado General and the Denver General Hospitals.

Out of this vast amount of clinical material there ought to exist an adequate daily supply of interesting cases or types of work that any visiting doctor may want to observe or investigate.

OFFICIAL CALL AND PROGRAM

Fifty-sixth Annual Session of the Colorado State Medical Society

The Colorado State Medical Society will hold its fifty-sixth annual session at Colorado Springs, September 21, 22, 23, 1926, preceded by an initial meeting of the House of Delegates, Monday evening, September 20th, at 8:15 p. m.

All scientific meetings and meetings of the House of Delegates, as well as the scientific and commercial exhibits, will take place in the city auditorium. The nominal headquarters will be the Antlers Hotel.

The scientific program has been arranged by the Committee on Scientific Work, consisting of Dr. J. B. Crouch, chairman; Dr. E. D. Downing and Dr. F. M. Heller. The local facilities for the meeting are provided by the Committee on Local Arrangements, consisting of Dr. J. H. Brown, chairman; Dr. C. S. Morrison and Dr. O. R. Gillett.

Delegates will please note the time of the first meeting as given above.

President G. A. Boyd and President-elect G. H. Curfman have interested themselves in the work of the Scientific Committee and it is believed that the meeting this year will equal that of 1925 in scientific and general interest. The constituent societies have again been asked to take an active part in the exhibits.

Following is the program along with announcements dealing with entertainment for the members, guests of the Society, and the ladies. Plans of the Ladies' Auxiliary given further on indicate a very pleasant and profitable meeting for this valued adjunct of the Colorado State Medical Society.

F. B. STEPHENSON,
Secretary.

PRELIMINARY PROGRAM

Fifty-Sixth Annual Session, Colorado State Medical Society

TUESDAY, SEPTEMBER 21

Morning Session, 9 A. M.

1. The Lymphatic System as a Defense Mechanism.—*C. W. W. Poynter, M.D., Omaha, Nebr.*
2. The Role Played by Epithelium in Infections of the Conjunctiva and Cornea. (A Possible Explanation of the Vagaries of Inflammations in Other Mucous Membranes).—*William C. Finnoff, M.D., Denver, Colo.*

In the study of conjunctivitis, attention has always been directed to the secretion. This has frequently given negative results. Instead of the infecting organism exerting its baneful influence from the secretion, it lodges on the epithelium and invades the epithelial cells. From this layer the bacteria cause the changes that occur in conjunctivitis. Therefore, the epithelium rather than the secretion should be studied. It is suggested that this phenomenon might explain the mechanism of inflammatory processes in other mucous membranes.

Discussion opened by E. R. Neeper, M.D., Colorado Springs, and J. J. Waring, M.D., Denver.

3. Medical Aspects of Goitre.—*T. D. Cunningham, M.D., Denver.*

Goitre in Colorado is of increasing importance. The proper classification and diagnosis of the diseases of the thyroid is the first essential in proper treatment; the effect of iodine upon the gland itself; the uses and abuses of the iodine therapy; the treatment of goitre from the medical standpoint.

Discussion opened by Charles N. Meader, M.D., Denver, and M. O. Shivers, M.D., Colorado Springs.

4. Obesity—Its Causes, Complications, Treatment.—*Harry Gauss, M.D., Denver.*

Obesity is a disorder of metabolism. The body weight is usually taken as the index of obesity. The normal weight of a person is influenced by his natural geographical habitat, his race, stature, and age. In this country, the most reliable data on the interrelationship of age, sex, height and weight is obtained from the compiled insurance tables.

Obesity is caused by exogenous and endogenous factors. Exogenous obesity results from overeating and lack of exercise; endogenous obesity results from deficiencies in certain endocrine glands. Obesity diminishes life expectancy as shown by charts prepared by insurance companies; also, it increases the tendency to certain intercurrent diseases. The treatment of the obese patient aims at the curtailment of his food intake and at the

increase of bodily exercise; and in the endocrine types, specific glandular therapy is given.

Discussion opened by Arnold Minnig, M.D., Denver, and R. W. Arndt, M.D., Denver.

Afternoon Session, 2 P. M.

1. Presidential Address.—*George H. Curfman, M.D., Salida, Colo.*
2. Diabetes Mellitus.—*C. F. Kemper, M.D., Denver, Colo.*

First: The nature of diabetes and its types fundamental to prognosis and treatment. Second: The things in common to all diabetic diets. The unessential and confusing differences in diets. Third: Indication for and methods of using insulin in uncomplicated diabetes. The accepted use of insulin in complications, such as coma, infections, gangrene, etc.

Discussion opened by Carl Gydesen, M.D., Colorado Springs, and J. N. Hall, M.D., Denver.

3. Chronic Nasal Sinusitis—Its Effect Upon General Infections.—*L. B. Lockard, M.D., and A. J. Argall, M.D., Denver.*

Latent para-nasal sinusitis has assumed a role in focal infections as prominent as that played by tonsils and teeth. There is an especially close etiologic relationship between it and the various acute and chronic infections of the lower respiratory tract. Statistics showing frequency of this association. Diagnosis is difficult because of the frequent absence of local symptoms. Complete roentgenographic study is essential. Other methods of diagnosis.

4. Manifestations of Para-Nasal Sinusitis.—*James H. Leyda, M.D., Denver.*

Discussion opened by F. L. Dennis, M.D., Colorado Springs, and R. H. Finney, M.D., Pueblo.

5. Diseases of Animals Communicable to Man.—*E. R. Mugrage, M.D., Denver.*

Subject of much importance from both the economic and the health standpoint. Man is theoretically capable of contracting any animal disease. Immunity, which in many cases appears absolute, is really only relative. In some cases man and animals are both essential to complete the life cycle of the parasitic agent. (Lantern slides.)

Discussion opened by Dr. Geo. W. Stiles, Jr., Denver.

WEDNESDAY, SEPTEMBER 22

Morning Session, 9 A. M.

1. Bone Lesions—Their Diagnosis and Treatment.—*Dean Lewis, M.D., Baltimore, Md.*
2. Enteroptosis.—*F. C. Buchtel, M.D., Denver.*

The subject of enteroptosis is divided into three groups:

1. Gastro-intestinal with especial attention paid to the duodenum.
2. Urinary stressing particularly the bladder; and
3. Pelvic—discussing perineal hernia.

The paper attempts to point out that there is a certain relation of one group to the other.

Discussion opened by Leonard Freeman, M.D., Denver, and W. T. H. Baker, M.D., Pueblo.

3. History Taking and Some of Its Phases.—*J. P. McDonough, M.D., Gunnison.*

The importance of history both to the patient and to the physician. Family history, personal history and method of eliciting history. Importance in diagnosis.

Discussion opened by O. M. Gilbert, M.D., Boulder, and C. E. Edson, M.D., Denver.

4. G. W. Holden, M.D., Agnes Memorial Sanatorium, representing Colorado State Hospital Association.

Discussion opened by L. H. McKinnie, M.D., Colorado Springs, and Edward Delehanty, M.D., Denver.

Afternoon Session, 2 P. M.

1. The Appendix in Childhood.—*B. B. Blotz, M.D., Rocky Ford.*

1. Essential preoperative, operative and post-operative differences from the adult type.
2. Report of cases.
3. Factors contributing to mortality.

Discussion opened by W. W. Grant, M.D., Denver, and F. P. Gengenback, M.D., Denver.

2. Diseases of the Umbilicus.—*Geo. E. Rice, M.D., Pueblo.*

Regional anatomy and embryology. Pathology due to anomalies of the urachus. Conditions resulting from a patent omphalomesenteric duct. Malignant tumors. Umbilical hernias. Cysts and infections.

Discussion opened by John W. Ames, M.D., of Denver, and R. S. Johnston, M.D., La Junta.

3. Hematuria.—*T. Leon Howard, M.D., Denver.*

Hematuria—as seen first by the family physician. His responsibility in regard to the early diagnosis of grave renal and bladder conditions. These cases having an extremely

high mortality now because of the time wasted in attempts at palliative treatments. The possible location of the hemorrhage, as judged by the appearance of the blood.

Discussion opened by W. M. Spitzer, M.D., Denver, and E. B. Liddle, M.D., Colorado Springs.

4. Some Interesting Urological Cases.—*Capt. H. V. Raycroft, M.D., Fitzsimons General Hospital, Denver.*

5. The Kahn Precipitation Test, With Report of 500 Cases.—*C. W. Maynard, M.D., Pueblo.*

Review of literature. Discussion of the availability of the Kahn test as a check on the Wassermann test, and as a substitute for the Wassermann test where the latter cannot be made. Report of cases, comparing the relative reliability of the Kahn test and a sensitive complement fixation test for syphilis.

Discussion opened by E. R. Mugrage, M.D., Denver, and W. W. Williams, M.D., Denver.

6. Health Conditions in the Republic of Panama.—*Edgar A. Bocock, M.D., Denver.*

For four centuries the Isthmus of Panama, rightfully regarded as the "pest hole" of the world, had been avoided by travelers as such, and the prosperity of this geographical section greatly hindered by its health conditions. The coming of the Americans in 1903 changed in a radical manner this situation, and instead of being the most unhealthy locality in the world, the Republic of Panama is now regarded as a health resort and it is annually frequented by hundreds of tourists who, attracted by its delightful climate and healthful conditions, visit it.

The public health movement, originated and fostered largely by the United States, is reflected by the activities in the Republic of Panama to our neighbors in South America, and it is the purpose of this paper to give a hurried sketch of the work that has been accomplished and the health conditions that are present today in this funnel through which from time to time pass the commerce of the entire world.

Discussion opened by R. W. Corwin, M.D., Pueblo.

THURSDAY, SEPTEMBER 23

Morning Session, 9 A. M.

1. The Thymus Gland: Its Growth, Involution, and Pathologic Conditions.—*Edith Boyd, M.D., Minneapolis, Minn.*
2. Surgery of Pulmonary Tuberculosis.—*C. F. Hegner, M.D., Denver.*

The successful treatment of pulmonary tuberculosis as well as of tuberculosis in other parts of the body, is founded on meas-

ures which control toxemia and conserve vitality through rest.

In selected cases of pulmonary tuberculosis surgery offers the best means of augmenting these factors. It increases the degree of rest secured by medical regimen, which without supplementary measures is insufficient to secure an arrest of the tuberculous process.

Surgery is subordinate to medical management. It alters local conditions making these more favorable for the orderly process of healing.

Surgery exercises its beneficent influence through mechanical principles.

Varieties of surgical procedure:

- (a) Section or resection of nerves—sensory—motor.
- (b) Direct compression of most diseased area—pneumolysis—apicolysis—tamponade.
- (c) Massive compression—collapse—by resection of parts of several or all the ribs on one side of the thorax.
The mechanics of surgical collapse.
Some points in technic.
Choice of Anesthesia.
Importance of postoperative management.
Indications for surgical intervention.
Report of cases.

Discussion opened by C. O. Giese, M.D., Colorado Springs, and Major Wm. H. Thearle, Fitzsimons Hospital.

3. Diagnostic Problems Peculiar to the Veterans' Bureau Hospitals.—*B. K. Hays, M.D., Ft. Lyon, Colo.*

The diagnostic problems peculiar to the Veterans' Bureau Hospitals are due largely to the fact that diagnosis involves the matter of compensation. Patients often desire a positive diagnosis, and for that reason history and subjective symptoms as given must be accepted with reservation. The methods of investigation pursued in the hospitals usually serve to clear up doubtful cases, yet there are many patients admitted who are definitely subnormal and in whom the diagnosis is by no means easy. Practically all of these patients have been told that they have tuberculosis and their one desire is to obtain official confirmation of the diagnosis that they may receive the eighty dollars per month allowed to them by the government.

Before the World War tuberculosis was frequently overlooked. Since the World War it has been diagnosed more frequently than it exists. Among those entering the hospitals who are found upon examination not to have tuberculosis the largest number are psychopaths. Some are born degenerates, others are alcoholics or drug addicts, while still others are the victims of syphilis, intestinal parasites, adenoid or endocrine disturbances.

Many diseases are indistinguishable from tuberculosis. Physical signs often lead to an erroneous diagnosis.

Discussion opened by C. E. Harris, M.D., Woodmen, Colo.

4. Treatment of Tuberculosis with Artificial Light.—*F. A. Forney, M.D., Woodmen, Colo.*

Patients with pulmonary tuberculosis. No case considered except it is a positive sputum case, and if there is an extra pulmonary lesion it is clinically of less importance than the pulmonary lesion, or the case was doing poorly on the other forms of treatment.

Technique of Treatment: A Time and Method of daily exposure; also total exposure. The report is made with the idea of showing types of cases that have received fifteen hours or more of quartz light therapy while undergoing sanatorium treatment.

Discussion opened by Dr. Cook, Ft. Lyon, and Dr. I. D. Bronfin, Edgewater.

Afternoon Session, 2 P. M.

1. A. Comparison of Rural and Urban Children in Colorado.—*Roy P. Forbes, M.D., Denver.*

The material used is based on physical examinations by physicians, dentists and dental hygienists at rural health conferences, as well as school examinations in Denver. The nutrition of rural and urban children is compared at low and high altitudes. Dental caries is also compared in large groups of children at low and high altitudes. Factors influencing malnutrition and dental caries in the various groups are discussed.

Discussion opened by A. J. Wenk, M.D., Colorado Springs, and Dr. Spaulding, Denver.

2. Bleeding During Pregnancy.—*G. Heu-sinkveld, Denver.*

Bleeding in early months due to menses, local disease, polyps, traumas, ectopic gestation, abortion. Treatment of all except last two simple. Last two only dangerous and need attention. Differential diagnosis of the above condition. Emphasis on conservative treatment of threatened abortion. In later months two conditions, abruptio placentae and placenta previa. Symptoms, etiology, differential diagnosis, treatment, case reports.

Discussion opened by H. R. Bull, M.D., Grand Junction, and T. M. Burns, M.D., Denver.

3. Why Advertise Charity?—*Rev. Jos. F. Higgins, Representing Colorado Hospital Association.*
4. Treatment of General Paresis by Inoculation with Tertian Malaria. A Summary of First Year's Experience.—*Franklin G. Ebaugh, M.D., Denver.*

This paper is a preliminary report of this method of treatment on forty-five cases admitted to the Colorado Psychopathic Hospital. The clinical and serological results are tabulated with a general discussion of this method of treatment. (Lantern slides.)

Discussion opened by C. W. Thompson, M.D., Pueblo, and H. A. LaMoure, M.D., Pueblo.

House of Delegates

Meeting of the House of Delegates Monday evening, September 20.

Clinics

A Periodic Health Examination Clinic will be held every morning and afternoon.

Joint Exhibits

The Colorado State Hospital Association will furnish an exhibit in conjunction with the State Medical Society. It will be in charge of Dr. Phillip Hilkowitz and Dr. Carl Gydesen.

Exhibits on the Progress of Medicine

1. Malaria, Denver Co.....E. A. Bocoek
2. Typhoid Fever, Morgan Co.....
.....H. A. Johnson
3. Diphtheria, Pueblo Co.....W. E. Buck
4. Smallpox, Otero Co.....B. F. Blotz
5. Diabetes, Denver Co.....C. F. Kemper
6. Tuberculosis, Jefferson Co.....I. D. Bronfin
7. Infant Mortality, El Paso Co.....
.....E. L. Timmons
8. Medical Schools, El Paso Co.....G. A. Boyd
9. Pneumonia, Garfield Co.....O. F. Clagett
10. Scarlet Fever, Saguache Co.....I. L. Gotthelf

Exhibits on Scientific Subjects

1. Rocky Mountain Spotted Fever, State School F. Becker
2. General Pathology, Fitzsimons HospitalJ. V. Falisi
3. Dark Field Demonstrations, Denver Co.
..... P. Hilkowitz
4. Spirochetes, El Paso Co.....M. Staines
5. Intestinal Parasites, State School.....
.....E. R. Mugrage
6. Hemoglobin, State School.....D. N. Beacom
7. Tuberculosis, Denver Co.....H. J. Corper
8. Laboratory Technic, El Paso Co.....
.....N. W. Loud

Demonstration of fresh autopsy material by the State Medical School and by Major J. V. Falisi, of the Fitzsimons Hospital.

X-Ray Exhibitors

S. B. Childs in charge

1. W. W. Wasson.
2. F. B. Stephenson.
3. H. P. Brandenburg.
4. N. B. Newcomer and C. A. Conyers.

5. Agnes Memorial Sanatorium.
6. National Jewish Sanatorium.
7. Denver General Hospital.
8. W. T. H. Baker.
9. W. F. Drea.
10. O. M. Gilbert.
11. Fitzsimons General Hospital.
12. R. B. Porter.
13. Colorado General Hospital.
14. F. A. Forney.
15. N. W. Loud.
16. I. D. Bronfin.

Commercial Exhibitors

Becton-Dickinson & Co.
Geo. Berbert & Sons.
Butterfield Sons, F. C.
Deshell Laboratories, Inc.
J. Durbin Surgical Supply Co.
Geo. S. Daugherty.
Colvin Bros.
Horlick's Malted Milk Corp.
Hygienic Fibre Co.
Johnson & Johnson.
Merrell-Soule Co.
Modern Woodmen Sanatorium.
Paul V. Muckle & Co.
Riggs Optical Co.
Victor X-Ray Corp.
Denver Fire Clay Co.
Arnold Dairy.

Entertainments

Tuesday, September 21st, First Methodist Episcopal Church, 7:30 p. m., Lecture, THE PROGRESS OF MEDICINE, Morris Fishbein, M.D., Chicago, Editor of the Journal of the American Medical Association. The public is invited.

Antlers Hotel, 9 p. m., President's Reception and Dance.

Wednesday, September 22nd, Broadmoor Hotel, 7:30 p. m., annual Banquet and Dance.

PROGRAM

Women's Auxiliary of The Colorado State Medical Society

Sept. 21st, 22nd and 23rd

Tuesday, 9 A. M. to 5 P. M.: Registration at Auxiliary Headquarters, Sun Parlor, Antlers Hotel.

10:30 A. M., Meeting of Executive Board, Parlors Antlers Hotel.

Tuesday afternoon, 2:30: Cards, Antlers Hotel, and visiting hours.

Tuesday, 7:30 P. M.: Lecture, THE PROGRESS OF MEDICINE, Dr. Morris Fishbein, Chicago, Editor of the Journal of the American Medical Association.

9 P. M.: President's Reception and Dance, Antlers Hotel.

Wednesday, 10 A. M.: Annual Session of State Auxiliary, Rose ball room, Antlers Hotel.

1 P. M.: Luncheon, Bruin Inn, \$1.00. Cars will leave Antlers Hotel at 12:15 o'clock. Please notify headquarters before 10 o'clock Wednesday morning of your acceptance of luncheon.

7 P. M.: Banquet and Dance at Broadmoor Hotel.

Thursday: Informal drives, cards, Antlers Hotel.

The committee urges all local and visiting members to attend the general session and luncheon.

The local committee consists of Mesdames C. S. Morrison, chairman; S. W. Schaefer, J. H. Brown, P. O. Hanford, W. F. Drea, T. R. Knowles, E. B. Liddle, L. H. McKinnie, Don Vanderhoof, J. J. Mahoney, and J. B. Crouch.

HOTEL RATES

The following rates are quoted by Colorado Springs hotels for members of the Society and their families during the time of the convention:

The Antlers. European plan.

Four dollars per day per person for room with bath accommodating two persons.

The Broadmoor. American plan only.

Single room without bath, \$9.00 and up.

Double room without bath, \$15.00 and up.

Single room with bath, \$10.00 and up.

Double with bath, \$18.00 and up.

Minimum rate accommodations can probably be secured at that season of the year, especially if reserved in advance.

The Acacia Hotel. European plan.

Single without bath, \$2.00-\$2.50.

Double without bath, \$3.00-\$4.00.

Single with bath, \$3.00-\$3.50-\$4.00.

Double with bath, \$5.00-\$5.50-\$6.00.

The Alamo. European plan.

Single without bath, \$1.50-\$2.00-\$2.50.

Double without bath, \$2.50-\$3.00-\$3.50.

Single with bath, \$2.50-\$3.00-\$3.50.

Double with bath, \$3.50-\$4.00-\$4.50.

PORTRAIT OF A GREAT TEACHER

By Glenn Frank, President University of Wisconsin

Great scholars are numerous.

Great teachers are rare.

There are probably fewer great teachers now than there were fifty years ago; there will probably be still fewer great teachers fifty years hence.

The god of research is slowly but surely proselyting the followers of the god of teaching.

The teacher of 1850 was mainly a man with an object.

The teacher of 1950 may be merely a man with a subject.

Schools have two gigantic responsibilities, viz.:

The responsibility of investigation.

The responsibility of interpretation.

The man of the laboratory may investigate.

The man of the lecture room may interpret.

The teacher has a different and, shall I say, diviner commission than either the investigator or the interpreter?

These men deal with the matter of their subjects.

The teacher must deal with the minds of his students.

Schools have many functions, but their chief function is to furnish society with three sorts of servants, viz.:

Investigators.

Interpreters.

Inspirers.

Speaking rather loosely, for a moment, the teacher is of the third sort.

The teacher's primary business is that of a stirrer-up.

He is not, save secondarily, a salesman of knowledge.

He is, primarily, a stimulator of curiosity.

But the great teacher manages to combine all three functions to his ministry to the minds of his students.

The great teacher is an investigator; he is not content to squat submissively behind the breastworks of accumulated knowledge; he flirts with the unknown out on the frontiers of knowledge; only so can he bring the spirit of intellectual adventure and conquest into his class-room; an in-curious man cannot stimulate curiosity.

The great teacher is an interpreter; he not only knows his facts, but he knows what they are worth; he knows more about his own subject than anyone else, but he knows enough about other subjects to keep his own subject in perspective.

The great teacher is an inspirer; he knows that the art of teaching lies in starting something in the student's mind; he is not content with merely putting something into the student's mind, as a butcher stuffs a sausage skin.

In short, the great teacher is a great man.

SOME SOCIAL FACTORS IN MEDICAL PRACTICE

C. H. PLATZ, M.D.

CASPER, WYOMING

There are a few things pertinent to the business affairs of the profession in the state, which I wish to bring before you at this time. I believe these things should be brought to your attention before the whole of the meeting rather than before the house of delegates. The discussion can take place at the meeting of the house of delegates, which meeting you should attend.

The first thing to be brought before you is the matter of the Sheppard-Towner Bill. There seems to be material objections raised as to its value. Primarily the Federal Government through the Children's Bureau outlines the policies of the law, its execution and interpretation. William C. Woodward of the Legislative Section of the American Medical Association has a bitter argument against it part of which I consider unsound. I do not know its value in the more populous states, nor do I know of its results, but I believe it has done much good in Wyoming in carrying on the work of maternal and infant hygiene. In the State of Wyoming, we have not had a Legislature educated enough to give to the State Health Department sufficient money to carry on the work of instructing the mother in maternal hygiene and of disseminating knowledge for the benefit of her child. It seems that our "dumb-animals" need protection and get it. The health of a mother or child, more or less, does not appear to be a matter of great consideration. In his argument, Mr. Woodward brings out the point that, if a state uses money obtained from the Federal Government, it is used for preventing contagious diseases, for a better milk supply, and for purer foods, all of which means help for the mother and child. Then suddenly the appropriation is cut off! The salient point brought out by Mr. Woodward is that this arbitrary control of the monies spent, the dictatorial attitude, is a step toward state medicine. However, state medicine is not all bad by any manner of means;

there is a certain amount of state medicine that is legitimate, such as the Board of Health Service, including the quarantine laws, culture work on suspected infectious diseases, enforced treatment of venereal diseases, care of the persons who are insane or mentally deficient, and also the support of medical education; but under no circumstances should the state diagnose or treat diseases that belong to the private practitioner. I do not believe that the Sheppard-Towner Bill should be condemned in toto. I believe that the bill is honest in its intention to bring knowledge to pregnant mothers, as to the care of themselves and their children. That it has flaws is not at all surprising. The idea of having this work nationalized is an innovation of recent years. I have no doubt but that it can be modified so as to be satisfactory to the profession as a whole.

Pre-natal Care

Through this same Children's Bureau sent out by the way of our State Board of Health, I received a pamphlet on the subject of pre-natal care which is splendid. Evidently this pamphlet is sent only to doctors, and it certainly is a good method of bringing to the doctors a method of systematizing their pre-natal examinations. Maternity work is a large part of the country doctor's practice, yet he rarely takes any post-graduate work in this most important subject. Much work has been done in the large obstetrical hospitals and clinics along the line of bettering the conditions for the pregnant mother, bettering the conditions for the expected infant, more scientific examinations of the pregnant mother, studying the causes of still-birth, diagnosing and treating meningeal hemorrhage, and, as the old-fashioned auctioneer has said, "Other things too numerous to mention." The men doing general practice, who have not kept abreast of the progress along that line, have certainly neglected a most important part in their practice, and in my opinion, have not played square with their people.

*The President's Address at the Wyoming State Medical Society, Lander, Wyoming, July 12-13, 1926.

Federalized Treatment of the Veterans of Our Wars

I wish to quote the following paragraph from an article in the Journal of the American Medical Association for June, 1926: "By the Veterans' Act of 1924, Congress authorized hospitalization of veterans at government expense, without regard to the nature or origin of the disability. This treatment of the disease at government expense was made available to all veterans in certain classes, without reference to the ability of the individual to provide treatment at his own expense or his right to obtain it from the state or city in which he lived. The Journal called attention a few months ago to efforts at extension of the scope of this federal aid. May 17, the House of Representatives passed a bill extending such government attentions to cover outpatient treatment as well as hospitalization, and enlarging the term "veterans" to include women who served as army nurses under contracts between April 21, 1898, and February 2, 1901, contract surgeons and contract dentists. This bill is now pending in the Senate." I do not believe that there is a man or woman in the United States who does not want the men who fought our wars, the men who were injured in service, to get everything that is justly their rights, even more than their rights. However, when they take men or women, who were not injured in the service, and make medical parasites out of them, it is not only not fair to them but a crime against those who were really injured. The money spent on conditions not really service connected, deprives those who have really been injured, those who have returned shattered in health, of the opportunities that are their rights. If, however, these conditions must go on, it is no more than right that it should be turned to the home doctor, and let him handle it as he does his private practice. It costs about one hundred dollars to send a patient with diseased tonsils to the Government Hospital at Denver. Such a patient could remain at home, pay a reasonable fee and save the government money. The government would of

course reimburse such a patient and prevent the absolute waste of the difference of this fee and the one hundred dollars now expended. We can well understand the attitude of the Journal in these matters, as they are the beginning of state medicine. The article further suggests that if these matters are not properly adjusted, we may next expect the civilian employees to come under the same category, "Charity Medical Service." If this should once be done you can expect it to continue ad infinitum.

State and County Societies

Doctors, I bespeak for them a little more of your interest, both in the county and in the state societies. As you show interest in your County Society, the State Society will prosper. How long would the service clubs in your community last if the interest in them were not greater than the interest the average doctor shows toward his medical society; one being the man who is too intelligent, too well up in his work to associate with the home "numskulls"; the other is the man who is well satisfied with himself and does not need the association with other men to assist him in his own progress. The County Society benefits not only the writer of the paper, but also the men who attend the meetings. The County and State Societies promote a co-operation that can be obtained in no other way, and this same co-operation is what will assist in keeping the laity from going indiscriminately to the "Ford cure-all factories," instead of the family physician.

ACCURACY

Instead of our great quantity production making us an age of hodge-podge methods, it has made us an age of accuracy. The greater a process the more accurate it must become. Small inaccuracies become glaring defects when magnified a million times. Mass production is impossible without accuracy to the ten-thousandth of an inch. The time required to fit inaccurately measured parts, and the resulting waste of material, consumes all economies of manufacture. Pennies and nickels make or break a business unless financial accuracy is secured. The economic value of accuracy is impossible to exaggerate.—Henry Ford.

Wooden water mains, made of white pine logs, laid in New York streets in 1799, were dug up recently and found to be in good condition.

SOME GASTRO-INTESTINAL PROBLEMS*

WILFRED S. DENNIS, M.D.

DENVER, COLORADO

There is a growing tendency to view many gastro-intestinal problems in the light of alterations in the motility of some part of the tract, and in some instances, in the entire tract. This is a considerable advance in our methods of thinking about the gastro-intestinal tract and doubtless will lead us eventually nearer to the etiological factors involved. When this is true, we will have far more useful classifications and more uniform methods of treatment, not to mention its effect upon the prevention of disorders in this field. Very largely, in this field as in others, we are engaged in trying to remedy effects with the causal factors either unknown or ignored. How frequently we consume much time with a fractional analysis of the gastric content to the end that we may advise acid or alkali, or order cathartics, as if by this method we were about to permanently relieve a sufferer from constipation.

Because motility is dependent upon a neuro-muscular mechanism there appear also, and for the same reason, alterations in secretion and sensation. Upon these three factors we have the basis for some of the symptom complexes so frequently observed. But this is not enough to entirely cover the field, since any of the above may soon lead to changes elsewhere and thus complicate the picture. Take constipation for an example of one effect of altered motility. If not relieved, and if more or less continuous so as to constitute an actual stasis, we may find any of the following alone or in combination; hemorrhoids, fissures, ulcerative colitis, decubital ulcers of rectum and sigmoid, low grade infections of the appendix, gall-bladder and kidney pelvis, and even hypothyroid states in long standing toxemias of intestinal origin. When any of these conditions become established we complete a cycle which is, one might say, self-supporting, tending to maintain itself and usually to grow worse.

A text book is needed to cover all of the problems with which one may be confronted. Their duration, the period at which first observed, various treatments, both surgical and medical, tend to add to their complexity. After the one thing which seems at the time to be the key to the situation has been eradicated, we find that we were after all, treating only an effect of perverted function, and that the real cause lies deeper or eludes us entirely.

Aside from the more easily recognized disorders, such as cancer and ulcer, or frank appendicitis, there are a number of entities which are of considerable interest and are worthy of more special mention. One of these conditions at some time is nothing more than a pure neurosis, another more difficult to classify, will from the description be recognized as an entity, while the third group is dependent upon developmental abnormalities involving the lower tract. However, and with apparently no other good reason than to confound us in our efforts, even these divisions are not hard and fast, and not infrequently they overlap each other.

The examination of most gastro-intestinal conditions should follow some routine method. Physical and laboratory methods will rule out organic lesions in many of the organs. By the use of barium and the x-ray the motility of the tract is observed. Organic defects are looked for after the administration of barium on the fasting stomach, preferably in the morning, and the size, position, tone, motility, mobility and rate of emptying are carefully noted. These findings are only essential and important in the light of other findings and the history. At convenient periods later in the day and on following days the progress of the barium meal is observed, and the position, size, and tone of the remainder of the tract noted. Information regarding secretion, and here gastric secretion only is determined, although there is very good reason to believe that the upper intestinal secretions show

*Read before Fremont County Medical Society, February, 1926.

changes for the same reasons, is obtained through the medium of the test meal. The one hour Ewald is usually sufficient. In states of anacidity at one hour, the fractional examination will furnish data regarding the appearance of acid at a later period. Sensory manifestations are revealed in the history or by physical examination. The rectum should have special attention with the gloved finger and the proctoscope. The presence or absence of blood and parasites or their ova makes the examination of the feces important in some instances.

Upon the basis of this examination some impression is gained as to whether the complaints are primarily in the gastro-intestinal tract or are secondary to independent visceral lesions. Whether they are organic in nature or functional. Many times the abdominal lesions are so diffused that it is quite impossible to separate them chronologically, although in some instances the history is highly suggestive.

We recognize that it is quite possible to have considerable change in the motility, secretion, and sensation of the digestive tract without demonstrable organic pathology, and in, what proves to be upon examination, a physically normal and mentally alert individual. It is also possible for independent organic lesions such as cholecystitis or cholelithiasis, recurrent appendicitis, and hernia, with the addition in the female of salpingitis, lacerated cervix or perineum, and menstrual abnormalities, to produce the identical physiological changes, and their differentiation rests upon the completed examination. Eye strain may act in a similar manner. These changes in function which appear independent of organic lesions go to make up the symptom complex spoken of as gastro-intestinal neurosis.

Etiologically considered we find that apart from the central nervous system, we have the vegetative nervous system which presides over the movements of the digestive tract. The marked anatomical and physiological distinction between the central nervous system and the vegetative nervous system, is the fact that in the latter there are

ganglia interposed in the course of its nerve distribution. The vegetative nervous system includes the autonomic and sympathetic nerves. The autonomic or extended vagus system, originates in the medulla and the sacral segments of the spinal cord. The sympathetic and its ganglia have their origin in the thoracic and upper lumbar cords. These two systems are functionally opposed. The autonomic nervous system stimulates motility, secretion and sensation. The sympathetic inhibits them. These matters have been amply proven by the use of drugs and electricity in the experimental laboratory. Upon this basis when both systems are balanced, normal function results, and on the contrary, when either is influenced to any considerable degree, changes in motility, secretion and sensation may result. By far the greater number of functional disturbances in the gastro-intestinal tract, however classified, have their original etiology in an increased irritability of the autonomic nervous system. This irritability is not to be considered as an independent affection, but occurs in the class of individuals who have a more or less irritable central nervous system, the so-called nervous disposition. Fright, apprehension, worry, sorrow and other emotions are poorly borne and may lead, in many cases, to well defined changes in function with its attendant symptoms.

This type is seen with gastric distress, with or without pain, headache, dizziness, constipation and so on. At times it will be noted that the headache is not of the usual bilious type but more of a migraine nature, which so frequently resists all efforts to relieve, suggesting some vagary of the sensory nervous system, possibly having an hereditary basis, and analogous to the motor storms of epilepsy. The history points to some prolonged strain as the activating etiological factor. Upon examination we find a hypertonic, rapidly emptying stomach, with hypermotility which carries the barium content well into the colon in five or six hours where it stops because of the increased resistance of spasticity of the distal colon. The rectum is almost invariably empty with a defi-

nately spastic sphincter. Unless this stasis in the lower bowel is relieved, colitis, with or without ulceration, hemorrhoids and fissures may develop to further torment the individual and add to his difficulties. The gastric analysis usually shows some increase in hyperacidity and if this reaches high figures, intra-abdominal pathology should be seriously considered. Although just such cases as these may with nothing more than an alteration in normal secretion and motion simulate many organic lesions. Many cases of this type when seen early are returned to good health by an enforced vacation, or more leisure and the addition of simple sedatives, if vacation is impractical. Unadvised, however, their condition may be increasingly exaggerated, depending largely upon their individual susceptibility, until we see in the gastro-intestinal tract, hypermotility of the entire canal with a number of loose stools daily, loss of weight and strength, increased nervous instability, evidenced by dilated pupils, flushing and pallor, hyperesthesias and so on, until they reach a point where their real sanity may be in question. This is invariably acute in origin and relieved or moderated by relieving the tension. This type was seen frequently during the war.

A second class of cases belong to a great variety of conditions which are conveniently grouped under the heading of Gastroenteroptosis. Although there are a small number of this group in which ptosis follows some mechanical factor such as improper dress, injury or childbirth, by far the greater number are due to a constitutional predisposition. Stiller remarks that in 90 per cent of these, the abnormal position of the abdominal viscera is quite a distinct form of physical conformation. Thus his "asthenia universalis congenita" is a now well recognized and accepted type. Briefly considered we find a narrow, flat individual with an acute costal angle in which many or all of the abdominal organs are found much lower than the normal average. Since a few of the attachments of the gastro-intestinal tract are firmly fixed, there arise difficulties

which at times account for the most distressing symptoms. Dilatation of the duodenum because of mechanical factors associated in part with a low lying stomach, constitutes one example. The abbreviated mesentery of the terminal ileum when subjected to the dragging of a low cecum or to the low lying coils of the ileum, gives rise to a kink described by Lane. Also, and for similar reasons unusual angulation occurs at the hepatic, splenic, and sigmoid flexures. When symptoms are present at all, asthenia is a universal complaint. To this can be added neuresthenia and not infrequently hypochondriacal states. The numerous Gastro-intestinal symptoms may best be grouped under nervous dyspepsia and constipation.

Upon examination of the gastro-intestinal tract the stomach is found to be low and hypotonic or more often atonic. The peristalsis, which at first may seem about normal, decreases suggesting fatigue of the gastric musculature just as the individual himself suggests fatigue. Whatever the original cause certainly the poor blood and nerve supply because of tension on the attachments of the viscera, mechanical difficulties because of angulation of the duodenum, and intoxication dependent upon stasis, adds not a little to the composite picture. At five or six hours there is a residue in the apparently decompensated stomach. The same indifference in motility is seen lower in the tract, where part of the meal is in the cecum and ascending colon, but a much larger part lies low in the pelvis in the coils of the ileum. Although sometimes the colon on the left suggests spasticity more frequently, it is smoothed out indicative of some degree of colitis and a great mass lying in the rectal pouch where it will be seen hours later apparently not having aroused any stimulus to defecation. Later observation will show stasis somewhere in the tract. The gastric analysis does not usually depart markedly from the normal, but the general tendency seems to be toward a gradual deficiency of acid. Rectal investigation may reveal varying degrees of inflammation with or without ulceration. Hemorrhoids and fissures are not uncommon.

This is an important group of people from the medical standpoint, because their abuses have been considerable. Contrasted with the first group, who are frequently very self-sufficient, they are easily lead into various procedures and in many instances invite operations and exploratory investigations. The hypochondriacal may easily convince the unsuspecting of some intra abdominal lesion requiring surgery. In this group subsequent histories frequently suggest that there was not a definite indication for operation, nor were there any definite results forthcoming. It is here, probably, that the diagnosis has been so frequently made of chronic appendicitis and the appendix removed. Since the pathologists report of chronic appendicitis may be used as confirmation of such a procedure, it is well to remember that the pathological diagnosis of chronic appendicitis in the adult generally, while very comforting at times, is almost inevitable. The appendix, attempts at least, to fill and empty with the cecum. If changes in motility, such as have been tabulated, effect the cecum, the appendix will also suffer, not alone because of its physical limitations, but because it as well as the cecum is rich in lymphoid tissue and will suffer with stasis in this area. Symptomatically, tenderness in this area may be due just as much to irritation of the cecum, as to the appendix. Thus frequently tenderness without spasm persists after removal. Naturally there are instances when the appendix must be removed in these individuals, but it would seem that it has been, and still is being removed far too frequently and without a proper appreciation of the type of individual that is being dealt with.

Developmental abnormalities which involve the lower tract, are of particular interest, because their origin can be traced directly to the development of the digestive system. While frequently their discovery is accidental, such as an operation for a presumed gall-bladder lesion, only to find an acute appendix in this region because of a failure of the cecum to migrate beyond the hepatic region, or during the routine examination of the intestinal tract because of

some combination of symptoms. Within a little over a year, I encountered three cases of very definite abnormality in which the cecum had failed to migrate beyond the hepatic region. There were no symptoms which would suggest any unusual finding and but one conclusion presented itself. If there is intestinal stasis for whatever reason in these cases, the tendency to redundancy, enhances the condition. Short of these more definite conditions are several other factors, which, while not always responsible primarily for things as we find them, too frequently complicate matters. The colon may vary in length from four to ten feet and thus frequently we find a person with a colon all out of proportion to its allotted space. Thus we may have a long cecum that following the trauma of appendectomy may be found fixed low in the pelvis and because of this fixation decidedly altered in its normal function. Or a long sigmoid may coil back and form an excellent area for advanced inflammatory changes incident upon stasis. Between these points there will be loops and angulations. Jackson's membrane and Lane's kink are frequently productive of functional alteration and make possible pathological changes.

Quoting from a standard text upon embryology, the following is recited because of its scientific basis and practical bearing.

The gut is formed early in intra-uterine life when the entoderm is folded into a tube. At the same time the lateral expanse of superimposed splanchnic mesoderm swings inward from each side toward the midplane, forming a double-layered sheet containing the gut between its layers. (Arey.) Thus the gut is suspended in the midline similar to a pole lying in a folded sheet.

Also quite early the primitive digestive tube exhibits a bulbous expansion in the upper abdominal cavity, later destined to become the stomach, while lower down a second expansion appears which becomes the developed ileo-cecal region.

With elongation of the digestive tube incident upon growth, the ileo-cecal region migrates upward from its position in the left

pelvis toward the splenic area, while the small intestine fall to the right side of the abdominal cavity. Further growth takes the cecum across the abdomen to the hepatic region where a rotation of 180° carries the ileo-cecal region upward, backward and downward, bringing the ileal region to the inside of the cecum, and after further descent, into the right iliac fossa.

As the small intestine grows, it throws the mesentery into folds corresponding to the intestinal loops. There are no secondary attachments as is the case with the large gut. In the latter instance, the migration of the ileo-cecal region up the left side, across the abdomen, and down into the right iliac fossa, carries its mesentery in a wide sweep from left to right. The fixed point of the mesentery about which this fan spreads, is at the root of the superior mesenteric artery. Its secondary attachments are formed by the fusion laterally of the fan-like mesentery and the parietal peritoneum which fixes the ascending and descending colon for most of its length to the posterior abdominal wall. In varying degrees the cecum and sigmoid are free within the limits of their mesenteries. The spread of mesentery accompanying the transverse colon does not entirely fuse, but does attach itself anterior to the duodenum and is further attached to the greater omentum. These secondary attachments occur between the fourth and seventh months of intra-uterine life. Prior to the fourth month, the colon has only its mesentery as described.

From these facts of embryology, many abnormalities will be seen to be possible. Connell has outlined the various possibilities and uses the terms, migration, rotation and fixation. Migration referring to the direction of growth, rotation to the changing relation of the ileo-cecal region occurring with migration and fixation to the secondary attachments. Thus if after considerable growth has taken place, fixation fails, the colon will be free to fall back to the left side. This is rare. If in the region of the hepatic flexure fixation precedes migration, or if growth ceases and fixation occurs, the cecum comes to rest at this point. So, too, mobile and elongated cecum, and sigmoid may be accepted upon this basis. Adventitious bands could be due to partial fixation occurring before migration and rotation were completed. This could explain Jackson's membrane.

Summary

1. The gastro-intestinal neurosis, so-called, accounts for a vast number of minor, and a considerable number of major complaints directed to the digestive apparatus.
2. Ptosis, which is a common condition, presents a very important problem and at times a difficult one as to the wisest course of procedure. Women make up the bulk of this group.
3. Development defects, while not as frequent as the other conditions referred to, warrant proper consideration.

OBSERVATIONS ON ACUTE MASTOIDITIS*

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A cursory review of the general medical literature and the literature of oto-laryngology convinces one that the subject of mastoiditis needs little elucidation. Such comprehensible descriptions of the disease and all its associated problems seemingly leave little of value or interest to be added. However, as we study and reflect over our

personal case records, we glean information which can be gathered only in the school of experience, and gain new impression, some of which may merit discussion and reflection.

As a basis of this study I have examined critically the records of seventy consecutive patients suffering from acute mastoiditis that came to operation during the past four years. Fifteen were children under

*Read before the Denver County Medical Society, May, 1925.

twelve years of age, the youngest four months old. Three cases were bilateral. Three required a second operation before healing, one of these a patient suffering from active pulmonary tuberculosis. Two patients died, one, a diabetic who died three months after operation from meningitis. The other will be described in detail later.

The first and most striking inference from this investigation is that, though a considerable number of patients come to operation through sheer neglect, the development of mastoiditis must in the majority of instances be attributed to factors which lie beyond human control.

Failure to observe ordinary prophylactic measures accounts for a considerable number of operations.

Three patients gave a history of long-continued exposure to wind while driving in an open motor car. Two of these were suffering on entrance from facial paralysis as well as mastoiditis. Three patients were locomotive engineers in whom the right or exposed ear was affected.

One-fourth of all the patients gave a definite history of violent blowing of the nose in the presence of acute rhinitis or sinusitis. During an epidemic of nasal influenza occurring in the spring of 1923, eight patients were operated in whom this act was undoubtedly a most important contributing factor.

The indifferent treatment of suppuration within the tympanic cavity swells the list of those requiring radical treatment. To the average layman a discharging ear, once the acute painful stage has passed, means nothing and he gives it little concern. Such negligence is sometimes followed by grave consequences. In two instances during the past year patients disappeared after the first treatment, myringotomy, only to return in four or six weeks with evident mastoiditis requiring operation.

In another group of cases it is difficult to exonerate the profession. Ten patients, assuming the histories elicited to be trustworthy, failed to receive the benefit of immediate abortive treatment. Prompt incision of the bulging membrana tympani,

rest in bed, calomel and leeching are generally accepted as the most efficient abortive measures in the prevention of mastoiditis, but unfortunately are not always promptly instituted.

However, it would be quite unfair to attribute the development of the majority of cases of mastoiditis to pure negligence. Ignoring for the moment such obvious contributing factors as acute or chronic inflammatory diseases of the nose and throat which retard drainage through the Eustachian tubes the extension of a suppurative process from the tympanic cavity to the communicating pneumatic chamber of the mastoid and its retention there is a matter in which accident undoubtedly plays a prominent part. Accident is not a scientific term, but I know of no better way to express it.

The peculiar topography of the tympanic vault undoubtedly determines in great measure the extent of a middle-ear infection just as the peculiar histologic structure of the individual mastoid determines the extent and pathology of a mastoid infection. This is evidenced by the varying course of a purulent otitis media in different individuals. One meets cases with intact membrana tympani in which the infection has been confined to the tympanic cavity for days or even weeks without extension to the mastoid while others, in spite of prompt incision and drainage, develop mastoiditis demanding operation. Theoretically the diploic mastoid with pneumatization limited to the region of the antrum ought to restrict the infection to the antrum proper, while the pneumatic would permit rapid and widespread infection, but at the same time, because of its large spacious cells, be favorable for drainage. Practically, neither type escapes extensive infection. In this series five were diploic and had unusually small antra.

The type of causative organism, whether staphylococcus, streptococcus or pneumococcus, all a matter of chance, most assuredly moulds the subsequent turn of events for better or worse as far as the patient is concerned. Sixty per cent of cases of this

series showed cultures of streptococcus or pneumococcus taken from the mastoid at the time of operation.

The general physical condition of the patient, his innate resistance to disease, determines in no small measure the course of an acute suppurative otitis media. Note the development of bilateral mastoiditis in a patient convalescing from a protracted attack of typhoid fever. Two cases followed scarlet fever and one developed concomitant with a severe diphtheritic angina. Still another developed an acute mastoiditis requiring operation a week before delivery. Her other mastoid required operation a week after delivery. During the interval between operations, she withstood a severe attack of erysipelas, but fortunately her recovery was uneventful. Three cases were post operative, one followed a herniotomy and two followed a submucous resection of the septum. Five of the children operated were suffering from malnutrition.

The recurrence of an inflammatory process in an operated mastoid, one that had been operated three years previously, a primary mastoiditis, and hematogenous infections of the tip, of which there were two, must certainly be attributed to accidental infection.

Another deduction from this study is that the question of operation rests on no single group of symptoms that are always present and easily recognizable. True, in the majority of cases the clinical signs are evident (ten of our patients presented themselves with subperiosteal abscesses or post auricular edema), but atypical cases are baffling and test our diagnostic acumen. Here a grave responsibility rests upon us. An uncomplicated case of suppurative otitis media demands prompt abortive treatment only, but once the suppurative process is breaking down the intracellular structure of the mastoid, delay in operating jeopardizes the health and life of the patient.

It may not be out of place here to remark that tenderness over the antrum, per se, especially before drainage is well established by incision, is not an indication for operation. Early pain can usually be ig-

nored and high temperature has lost its former significance. Nor can we always decide on operation arbitrarily by the length of time the ear had been discharging. A tonsillectomy and adenoidectomy may be all that are required. Here an x-ray is invaluable. The gratifying results of conservative treatment persisted in when we know from the x-ray that there is no breaking down of the mastoid structure, repay us well for our trouble. During the past year the writer has treated non-surgically two children with bilateral suppurative otitis media for ten and twelve weeks respectively, both making uneventful recoveries with good hearing.

Sometimes the diagnosis is missed because the disease is not thought of. One child, when first seen, was in clonic convulsions, which subsided immediately after operation. The illness had been attributed to dentition, for which she had been treated a full week.

In contrast to such alarming symptoms the development of mastoiditis, especially in stoical adults, may be attended by no noteworthy symptoms. In order to illustrate, permit me to cite briefly the history of a patient:

Mrs. T., a Danish woman, 64 years of age, consulted me at my office on September 27, 1923, complaining of a discharging left ear. Her daughter, who acted as interpreter, could not elicit an accurate history further than that the discharge began about three weeks ago. On examination we found a small elderly woman who did not appear very ill. The right ear is negative. The left ear shows extensive destruction of the membrana tympani and a profuse discharge of pus. There is, however, no drooping of the postero-superior wall and no tenderness over any portion of the mastoid, including the region of the emissary vein. The patient has no fever. She was advised to return the following day for further study, x-ray and treatment, but failed to do so. On October 1, 1923, four days later, I received an urgent call to see the patient at her home. The daughter stated that her mother had been complaining all day of headache, vertigo and pain in the left mastoid, but that they felt no alarm until she became stuporous and failed to recognize them. She had had no chills, no vomiting and no convulsions, but had refused all nourishment. Her temperature, upon my arrival, was 104.5, pulse 120.

It was evident at once that we were dealing with an acute mastoiditis, complicated in all probability by some grave cerebral disturbance. The patient was lethargic, yet her pain could be inferred from the grimaces elicited by pressure upon the mastoid. There was no derangement of

the oculomotor nerves, no facial paralysis. Kernig's sign was suggestive, but there were no other focal symptoms. There was but slight discharge in the external meatus.

The patient's relatives were amazed when the gravity of her illness was plainly stated, but consented to immediate operation, which was performed at Mercy hospital at midnight. After chiselling through a rather thin cortex, there was found extensive necrosis with free pus of the whole pneumatic mastoid, including the tip. With the hope of finding a localized extradural abscess, the tegmen antri was removed, but the meninges thus exposed appeared normal. The sigmoid sinus was not uncovered. Culture from the mastoid showed streptococci. For two days following the operation all symptoms disappeared. Her temperature dropped to 99 degrees and she recovered consciousness and things looked hopeful. The next day a sharp rise in temperature and the appearance of headache, vomiting and delirium demonstrated the progress of the disease. Spinal fluid now contained streptococci, the same organism that was recovered from the mastoid. The patient succumbed on October 6th to diffuse suppurative meningitis."

In the presence of an acute suppurative otitis media which has persisted for eight or ten days, the most important signs and symptoms of disease, warranting operative interference, as judged from the series under discussion, are pain, tenderness, prolonged discharge and changes in the canal and drumhead. Deep hemicranial pain, radiating over the temporal region, especially at night, is one of the most constant symptoms. Tenderness on pressure over the various points of the mastoid process, which shows no tendency to diminution, is highly significant, especially if associated with an amount of discharge which is obviously too great to be of purely tympanic origin. Sagging of the postero-superior canal wall, due to edema or actual narrowing of the canal though usually much later in appearance, are pathognomonic and demand immediate surgical intervention. Leucocytosis temperature, vertigo and increasing deafness are added evidence but not constant enough to be dependable.

In the so-called quiet mastoiditis, x-ray plates taken and interpreted by an expert radiologist, are of the utmost value. Needless to say, mere haziness or cloudiness are not sufficient evidence for operation, but once the intracellular markings disappear, the indications for operation are absolute. In doubtful cases a succession of plates, taken three to six days apart, will show the progress or retrogression of the disease.

In conclusion it may not be amiss to call attention to the bloodclot method of closure, a technique which is neither new nor original, but the results of which are so gratifying that it deserves mention. Briefly, this technique consists in complete exenteration of the mastoid under aseptic conditions, followed by drying and sterilization with tincture of iodine. The wound is then completely closed, the periosteum with catgut and the skin and fascia with silk-worm gut. Several strands of silk-worm gut are left in the lower angle of the wound for the purpose of relieving tension, but these are removed the next day. The result is organization of the blood-clot with primary healing. This is the treatment "par excellence". Out of forty cases thus closed, all but two held and healed completely in 10-15 days, in many cases 5-8 days. In contrast to the old technique this method of closure affords a painless primary healing without deformity, with the saving of time to the surgeon and of pain and expense to the patient. Even in cases where the sinus and the dura have been exposed, healing goes on uninterruptedly, nor does the extent of virulence of the invading organism delay convalescence. Counter drainage by long incision in the membrana tympani must, of course, be provided for.

Conclusions

1. Prophylaxis and early abortive treatment will undoubtedly prevent many cases operative mastoiditis.
2. The diagnosis of mastoiditis in atypical cases is often difficult. The x-ray is invaluable in the diagnosis.
3. The blood-clot method of closure is a great improvement in technique.

Optimism

There are men who, in the face of all history, of the great changes wrought in men's condition, and of the new principles which are now acting on society, maintain that the future is to be a copy of the past, and probably a faded rather than bright copy. From such I differ. Did I expect nothing better from human nature than I see, I should have no heart for the present effort. I see signs of a better futurity, and especially signs that the large class by whose toil we all live are rising from the dust.—William Ellery Channing.

There are in Czecho-Slovakia about 400 medical women.

THE TREATMENT OF BRONCHIAL ASTHMA WITH SODIUM IODIDE

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Much has been accomplished in the past decade with regard to the etiology and treatment of bronchial asthma. Rowe¹ obtained definite results in cases with protein sensitiveness and in those with sensitiveness to animal emanations and dusts; his work is based on the original observations of Walker and Cooke, which demonstrated the specific etiologic importance of certain proteins. Aside from this there still remains a large group of cases in whom this disease presents to the clinician one of the most disconcerting and discouraging therapeutic problems which he has to confront either in general or hospital practice. However, good results have been reported with non-specific protein treatment by Van Leeuwen², with vaccine treatment by I. C. Walker³ and with calcium chloride by C. T. Brown⁴. Still others report cases yielding to radiant therapy and endocrine treatment. As a temporary medium of relief, adrenalin is a valuable drug and morphine must frequently be resorted to. In the group of intractable cases of asthma there comes a time, in many instances, when the patient loses confidence in all therapy which is especially so with cases of prolonged duration extending over years and where the ordinary prophylactic and therapeutic measures have been of little or no avail. The days of empiricism in medicine have almost passed, but occasionally personal experience is worth recording while scientific corroboration and explanation must await long and laborious animal and laboratory tests. As a handicap to the experimental testing of therapeutic agents in bronchial asthma, we are confronted also with the inability to produce the disease with regularity in experimental animals. The striking results obtained in the clinic, however, in a series of patients, made it seem advisable to present an experience which, though based mainly on empiric observations, has filled a place in the therapy of bronchial asthma. The treatment to be presented is in no wise

to be considered entirely new, since the use of sodium iodide in small doses has been reported on favorably innumerable times in the clinical literature previously, but the method to be reported on below differs from those previously presented, in that it is rather more radical and administrations are carried over longer intervals. Osler⁵ considered potassium iodide the most valuable remedy available for asthma and believed it acted like a specific. The usual method of administration for asthma consists of giving twenty grain doses three times daily. That this amount is insufficient to produce the desired symptomatic results was first strikingly shown in the author's personal experience, which will be cited first in reviewing briefly the cases to be reported, and then was proven not to be an accidental occurrence, but a constant result of the use of the proper method of administration by an experience in ten other cases.

The author's case dated back to the fall of 1909, when there developed a severe upper respiratory tract infection with laryngitis and persistent cough and attacks of dyspnoea extending over three months. In the following spring of 1910 there occurred a classical attack of bronchial asthma lasting eight days. These attacks recurred in the spring of every year and lasted about six to ten days, with the exception of one year spent in California and another in Germany. In June of 1923 a severe attack occurred during residence in Massachusetts, which lasted for ten days, but did not completely resolve as in previous years, and every morning at about 2:00 a. m. o'clock, the patient would be awakened from sleep by an attack lasting from one-half to one hour. In the following November an upper respiratory tract infection aggravated the asthma to such an extent that the patient was incapacitated. At first one-half cc. doses of adrenalin chloride 1/1000 produced relief for two or three hours, but the attacks became so severe that adrenalin be-

came ineffective and morphine had to be resorted to. All protein sensitization tests were negative and medication gave no relief. Idiosyncrasy to the iodides caused their discontinuation at the time. A change of climate, with residence in Denver, resulted in no beneficial effect. The intravenous use of sodium iodide in large doses was suggested merely for its possible sedative effect. The sodium iodide was given in amounts from 30 to 150 grains in twenty-four hours, 30 to 50 grains being given once to three times a day when shortness of breath was anticipated. The relief was so pronounced that the treatment was continued. The sodium iodide treatment was initiated in October, 1924, when adrenalin chloride administration still was necessary, but the number of injections and dosage were gradually reduced. Six months after the beginning of the iodide treatment, adrenalin injections were discontinued. At this time the sodium iodide was still being continued by mouth in doses from 20 to 50 grains, totaling up to 150 grains every twenty-four hours. The last dose being given usually between 11:00 and 12:00 at night. The patient has been restored to full working capacity; the iodides are still being continued in amounts of 20 to 60 grains eighteen months after initiation of this treatment. If the sodium iodide is omitted after one day, asthmatic symptoms recur.

The personal success with the sodium iodide led to its trial in a series of similar cases suffering from asthma of varying severities. Most of the cases had consulted physicians specializing in the treatment of asthma in some of the large cities of America and many of them gave a history of having used potassium iodide with little or no relief. Many of them also had been treated with vaccines and innumerable other drugs. In spite of many handicaps, including unwillingness to co-operate, the severity of the attacks and the long duration of the disease, the results obtained in these series by the use of large doses of sodium iodide proved gratifying. More than 80 per cent of the

patients were benefited and a large number of them were able to resume their former occupations. Many of the patients had received potassium iodide previously, but without marked effect, due to an improper use of the drug, the dosage having been too small or improperly administered. In severe cases as high as 50 grains in a single dose was prescribed, and instead of giving the drug in the usual way three times a day, it was found advisable that it be given only during an impending attack. In dyspnoea it may be advisable to increase the dosage. It is preferable to administer the sodium iodide with the appearance of the first paroxysmal symptoms. Asthmatics usually suffer recrudescences at night at about 2:00 in the morning. For this reason the drug is administered preferably in the evening and late at night, a dose being given between 11:00 and 12:00 p. m. It is usually given by mouth in a 100 per cent solution (100 grams of sodium iodide dissolved to 100 cc.). A drop of this solution represents approximately one grain, and the dose can be increased or decreased as desired. The drug is given well diluted in water to prevent vomiting. The sodium iodide can be taken before or after meals, as it makes little difference, except that absorption is more rapid on an empty stomach. Although in many cases very large doses of sodium iodide, 60 grains every three hours, were given by mouth, there did not seem to be any undesirable effects on the gastro-intestinal tract. Nausea, vomiting, or diarrhea did not occur unless the drug was given in too concentrated form. Iodism occurred in several patients but never to a marked extent. The most common manifestation of iodism was in the form of coryza. One case developed a papular eruption which did not become pustular. These symptoms of toxicity immediately disappeared upon reducing the dose of sodium iodide administered. Continued use of the drug resulted in an increased tolerance. In the author's personal case, initially 15 grains in twenty-four hours caused a coryza and a papular eruption on the skin, while

later as much as 250 grains, taken within twenty-four hours, resulted in no toxic manifestations.

No cases of seasonal asthma were studied. All those reported below were of the perennial type, which in some cases gave a history of earlier seasonal asthma.

Case No. 2: Male, 32 years old, developed hemoptysis seventeen years ago. Was well until the fall of 1923, when a bad "cold" was followed by asthma and bronchitis. Several injections of adrenalin were required daily for relief, particularly at night after the patient awoke in dyspnoea. A change to a high altitude resulted in no relief. Nasal polyps were removed, which gave temporary relief, after which an autogenous vaccine was given, with no benefit, and the patient required one or two adrenalin injections every night. Sodium iodide was then given in 25 grain doses at 6:00 and 11:00 o'clock at night, beginning January, 1925, and one week after sodium iodide treatment had been instituted, the asthmatic symptoms gradually subsided until adrenalin injections became unnecessary. He returned to Cleveland in April, 1925, continuing the use of sodium iodide, where, upon recommendation from his personal physician, the drug was discontinued and five days later the attacks of asthma returned. Re-administration of sodium iodide again resulted in a subsidence of symptoms. During temporary acute colds the dosage of sodium iodide had to be temporarily increased to obtain the desired effect in this patient.

Case No. 3: A musician, 39 years old, came to Colorado three and one-half years ago for pulmonary tuberculosis and developed symptoms of asthma eighteen months prior to this writing. Treatment was without avail and the symptoms of asthma were regular and fairly severe, so that the patient had to give up his occupation. Six months ago there was marked respiratory distress and the patient was given 45 grains of sodium iodide by mouth at 1:00, 6:00 and 11:30 o'clock p. m. This treatment resulted in marked relief within five hours. The dosage was reduced too rapidly to 20 grains in twenty-four hours, with a recurrence of symptoms, whereupon return to 40 grains twice daily caused symptomatic relief.

Case No. 4: A male peddler, 71 years old, has had bronchial asthma ever since eight years of age. At the age of twenty-five he came to the United States, and since this time the asthma was apparently of a mild type, as the patient was able to pursue his occupation. At fifty years of age he came to Colorado, which resulted in improvement in the asthma. On September 8th, 1925, the patient was seen and presented a moderate amount of dyspnoea. At this time he was taking three to six adrenalin injections a day. Gradually sodium iodide was increased to 35 grains, with the result that adrenalin injections had to be taken only once or twice a week. The case is still under treatment markedly improved.

Case No. 5: Business man, 52 years, developed asthma in fall of 1914, consequent to a cold lasting three weeks. Each successive year the attacks were of longer duration. The usual diagnostic methods were negative; so were treatments. At this time he was bed-ridden with marked dyspnoea and typical asthmatic symptoms. In December, 1925, sodium iodide was

given by mouth in doses of 50 grains at 1:00, 6:00 and 11:30 p. m. Improvement was definite within one week and shortly he returned to the ordinary duties. Improvement continued until at present 60 to 90 grains of sodium iodide in twenty-four hours are sufficient.

Case No. 6: Housewife, 47 years. Dyspnoea developed in the fall of 1921 and recurring attacks were noted every spring and fall, lasting from two to three months. In March, 1925, the patient was admitted to the National Jewish Hospital at Denver, where a diagnosis of far advanced pulmonary tuberculosis was made, and in the fall of the same year typical signs of bronchial asthma were found in addition to those of pulmonary tuberculosis. She was given sodium iodide in 25 grain doses at 1:00, 6:00 and 11:00 p. m., with marked symptomatic relief. The dosage was later increased to 35 grains, which has resulted in making the patient comfortable.

Case No. 7: Housewife, 60 years. Asthma since 1909. Three years ago the asthma became perennial. Skin tests and autogenous vaccines were without benefit. In June, 1925, she came to Denver, but the altitude resulted in no appreciable relief. In August, 1925, examination revealed the typical signs and symptoms of bronchial asthma. She was given 40 grains of sodium iodide at 1:00, 6:00 and 11:00 p. m., resulting in marked improvement within a week. For unknown reasons the drug was discontinued, resulting in an aggravation of symptoms throughout the fall and winter. Restitution of 50 grains of sodium iodide at 1:00, 6:00 and 11:00 p. m., caused a relief from dyspnoea. The patient has become comfortable again and it has been possible to reduce the amount given in twenty-four hours. The discontinuation of the drug for two days in this patient caused a prompt recurrence of symptoms, which were again relieved on 150 grains daily.

Case No. 8: Housewife, 28 years, remembered that as a child shortness of breath handicapped her doing as much as other children. In the fall of 1924 she developed a severe attack of asthma, and since then she has had persistent dyspnoea. All the skin protein tests were negative and different medications, including small amounts of potassium iodide, were unavailing. In April, 1925, in view of the mild type of asthma found at this time, sodium iodide in 35 grain doses was given at 6:00 o'clock and before bed time. Improvement was marked and the use of adrenalin was found unnecessary. The sodium iodide was reduced too quickly, so that one injection of suprarenin was required. Increase in dosage of sodium iodide again brought about comfort and at present the patient is taking 15 grains at 6:00 o'clock and 20 grains before bedtime, which seems sufficient to avoid symptoms.

Case No. 9: Housewife, 28 years. Positive history of pulmonary tuberculosis. In the early spring of 1925 she developed additional symptoms and signs of a mild bronchial asthma, from which relief was obtained by the use of sodium iodide by mouth of 15 and 30 grains in the evening and upon retiring.

Case No. 10: Girl of 16 years, markedly emaciated, weighing 72 pounds, which was 31 pounds below normal for her size. She gave a history of asthma existing for the past six years. It was of the perennial type. Symptoms of asthma were lacking for a short time after arrival in Denver. When the symptoms of asthma returned she was given sodium iodide 15 grains three

times a day, which caused a papulo-pustular iodide rash extending over the face, body and conjunctivae, associated with a moderate rhinitis. Reduction of sodium iodide to 5 grains resulted in a return of the asthma symptoms, but the eruption began to clear up. Increase in dosage of the iodide brought about a recurrence of the eruption, this being repeated several times, iodism with too large doses of sodium iodide and a return of the asthma with too small doses. Omission of the iodide caused a marked aggravation of the asthma and a loss of ten pounds in weight within one month. In April, 1925, the readministration of sodium iodide in 25 grains amounts at 1:00, 6:00 and 11:00 o'clock p. m., caused rapid improvement without a reappearance of the eruption. Within the next three months there was a gain of twenty-five pounds. Intercurrent respiratory infections caused temporary aggravation of the asthma. On January 5th, 1926, the patient returned home, weighing 109 pounds, slightly over normal weight.

Comment

Frequent examination of the urine of patients receiving large amounts of the sodium iodide revealed no abnormal findings. It is noteworthy also that the sodium iodide had to be continued in the majority of cases after the disappearance of symptoms of the asthma, and the question naturally arises as to whether the drug can be discontinued at all. So far as this report is concerned, no definite reply to this can be given from this series of cases. The longest period of treatment in these cases was eighteen months, and the sodium iodide administration in twenty-four hours has been gradually reduced to between 30 and 40 grains and a single dose at 11:30 p. m. without recurrence of symptoms. It is believed that eventually it may be possible to discontinue the use of the sodium iodide, but this remains for future observation to disclose. In closing it may be stated that experimental work has been performed in an endeavor to learn more about the action of the sodium iodide in asthma, but only with indefinite results, although suggestive. A series of experiments were performed on guinea pigs that had been sensitized with proteins (egg white). In these experiments it was found that guinea pigs would tolerate as high as 0.13 grams of sodium iodide (2 grs.) per 100 grams body weight. One-half of the sensitized guinea pigs were kept as controls and the other half fed or injected sodium iodide thirty minutes before being given the intoxicating dose of the proteins. There

seemed to be a definite inhibition of the toxic reaction to the second protein injection in the guinea pigs that had received the sodium iodide treatment. Further experiments, however, along this and other lines of administration, are being at present performed and will be reported on subsequently.

Conclusions

1. Sodium iodide seems to possess definite value in the symptomatic treatment of bronchial asthma.
2. Its benefit is the more evident by the fact that it has an effect in those cases (perennial type) in which all other treatment has been of no avail.
3. In the series of cases reported on, definite relief was obtained in 84.6 per cent.
4. No evident ill effects were observed from the administration of amounts of sodium iodide as large as 60 grains given eight times in twenty-four hours.
5. The maximum amount required to give symptomatic relief in the cases studied was 250 grains over a period of twenty-four hours.
6. Sodium iodide should be administered with a view to preventing an approaching attack, but is effective also in larger doses during an attack. Experience would indicate that small doses must be continued as a prophylactic over a long period.
7. In cases revealing an idiosyncrasy to iodides an attempt should be made to overcome the idiosyncrasy by starting with small doses or by using intravenous injections in the beginning. The effect of sodium iodide on the symptoms of asthma justifies the continuation of its use in spite of the presence of an idiosyncrasy toward iodides.

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SYSTOLE

A man may be more vigorous than his luck, or he may be more bending than his good.—Chinese Proverb.

Good manners are made up of petty sacrifices.—Emerson.

He loses his market who has nothing to sell.—Spanish Proverb.

It is the cause and not the death that makes the martyr.—Napoleon.

What belongs to the master is forbidden to the slave.—Arabian Proverb.

Light suppers make long life days.—Dutch Proverb.

Every one ought to measure himself by his own proper foot and standard—Horace.

A man often admits that his memory is at fault, but never his judgment.—Montaigne.

Though the mills of God grind slowly,
Yet they grind exceeding small.
Though with patience he stands waiting,
With exactness grinds he all.
—Longfellow.

A wise and good man can suffer no disgrace.—Diogenes.

Maxims are the condensed good sense of nations.—Sir J. Mackintosh.

It would take a very large book that contained all the "maybe's" uttered in a day.—French Proverb.

No good ever comes of minding other men's matters.—Fielding.

It is best to profit by the madness of others.—Pliny, the Elder.

DIASTOLE

The Ruling Passion

"Just what does 'keeping yourself unspotted from the world,' mean?" asked the teacher, discussing the Bible lesson for the day with a class of youthful misses.

"Not letting yourself catch chickenpox or measles," was an unexpected reply.—The Public Health Nurse.

Congenial Spirits

John—"I am a man of few words."

Henry—"Shake, I am a married man, too."

A Picked Nine

Old Lady (at ball game): "Why do they call that a fowl? I don't see any feathers."

Gentleman: "No, ma'am; it's a picked nine."—Kablegram.

Evolution

But the monkey business is only part of it. At an earlier stage men were not even that. They probably began as worms. From that they worked up to being oysters; after that they were fish, then snakes, then birds, then flying squirrels, and at last monkeys.

The same kind of change passed over all the animals. All the animals are descended from one another. The horse is really a bird, and is the same animal as the crow. The differences between them are purely superficial. If a crow had two more feet and no feathers, it would be a horse, except for its size.

The whole of these changes were brought about by what is called the Survival of the Fittest. The crookedest snake outlived the others. Each creature had to adapt itself or bust.

The giraffe lengthened its neck. The stork went in for long legs. The hedgehog developed prickles. The skunk struck out an independent line of its own.—Winnowed Wisdom by Stephen Leacock.

NEWS NOTES

Dr. Frederick W. E. Henkel of Rifle, Colorado has moved to San Diego, California.

Drs. Sara C. and Henry W. Wilcox are on a vacation in the Northwest.

Dr. C. F. Eakins of Brush, Colorado, has returned from an extensive clinical trip in Europe.

Dr. H. E. Robertson of the Mayo Clinic attended the August staff meeting of the Colorado General Hospital. He gave interesting discussions on the pathology of syphilis and endocarditis.

Dr. T. E. Carmody and family have returned from a motor trip through Yellowstone.

Dean Maurice Rees and family, of Denver, and Dr. V. B. Fischer and family of Boulder have been touring the southwest, including Mesa Verde in their travels.

Dr. Donald O'Rourke of Denver is leaving for six months' study in Europe.

THOMAS HAYDEN HAWKINS, A.M., M.D.

The passing of Dr. Hawkins, July 21st, 1926, arouses in the minds of many Denver men recollections of a colleague whose influence on the progress of Medical affairs in Denver and the State of Colorado was of more than ordinary importance.

Coming to this State in 1879 he remained here until 1909, and during these thirty years it can truthfully be said that he left an indelible impress on that which stands for the best in medical advancement. Although but thirty-one years of age when he arrived in Denver, he already had been associated with important medical affairs in New York City and had had an experience in organization of Medical Institutions which fitted him eminently for the very active part he soon assumed in medical matters here.

Dr. Hawkins was born in 1848 in Kentucky. His father was a Methodist minister whose influence was apparent on more than one occasion even though there was never any display of sectarianism or religious bigotry. No more liberal spirit was manifested than that displayed by Dr. Hawkins in his relations with his fellow men, although a deep and sincere morality was one of his strongest characteristics.

His medical degree was received at Bellevue Hospital Medical College in 1873, while for his literary attainments he received the honorary degree of A.M. from De Pauw University of Indiana. He served in the Out-patient department of Bellevue with such men as Gibney Webster, Wyeth and others. Early in his career he taught physiology in a School of Veterinary Medicine of which he was one of the organizers.

In practice, he soon showed his preference for surgery and devoted his principal efforts to the department of Gynecology which was rapidly developing into a most important specialty. His intimate acquaintance with the pioneers in this branch of medicine, T. Gaillard Thomas, Marion Sims and Emmet moulded his future activities to a not inconsiderable degree.

Arriving in Denver his organizing abilities and inclinations did not remain dormant. Medical Societies, Medical Journals, Medical Libraries, Medical Schools, Hospitals, Medical Legislation all felt his forceful influence. He was an important factor in the Arapahoe County Medical Society which with the Denver Medical Society united to

form the present County Society. In his President's address before the Arapahoe County Medical Society of which he was the third president, 1886, he emphasizes the importance of establishing a Medical Library as a part of the Society. He organized the Rocky Mountain Medical Times in 1882. This afterwards became the Denver Medical Times, continuing as such until 1906, since which time it has been known as the Denver Medical Times and Utah Medical Journal. As such it represents the first permanent Medical publication of the Rocky Mountain region.

The Gross Medical College, organized in 1887, later uniting with the Medical Department of the University of Colorado to form the present Medical school, was largely the result of Dr. Hawkins initiative.

He organized the first Woman's Hospital in Denver and was largely responsible for the development of St. Anthony's Hospital of which he was the active medical influence for many years.

In 1903 he was elected president of the Colorado State Medical Society, a fitting tribute to his energetic efforts in the upbuilding of Colorado's Medical institutions and as a standard bearer of medical ideals of the highest type.

His personal qualities were characterized by outstanding modesty. Only those most intimately associated with him appreciated his full worth. Endowed with great surgical ability he was ever retiring in its display. As a councillor and friend to the younger men there are many who can testify to his devotion. As a teacher he was clear, succinct and without superfluous verbiage.

He was an acute judge of men, steadfast in his friendships, patient in the face of opposition, slow to anger and long suffering in adverse criticism. He was endowed with remarkable vision and in this enjoyed the gratification of dreams come true.

His personal friends in the profession, his former students, the profession of Colorado lay a wreath of immortelles in appreciation and gratitude.

ROBERT LEVY.

EDGAR A. HADLEY

Dr Edgar A. Hadley of Montrose, Colorado, died on July 28, 1926, from a fractured skull received in an automobile accident.

Dr. Hadley was born in Indiana in 1866 and graduated from the Medical College of Indiana in 1900.

He was licensed in Colorado in 1903 and has been a constant member of Montrose County and Colorado State Medical Societies since that time. He had been a Fellow of the American College of Surgeons since 1922. He specialized in surgery and obstetrics.

NOTICE RUSH ALUMNI

There will be a luncheon during the State meeting at Colorado Springs to meet Dr. Dean Lewis, who will be a guest of the State Society during the September sessions. Further announcement at this time.

R. C. ROBE,
Chairman, Pueblo.

Complications from scarlet fever, such as inflammation of the joints, infections of the ear, nose and throat, can be avoided by early use of the antitoxin perfected by Dr. G. F. Dick and Dr. Abraham Zingher, according to reports made by them.

MEDICAL SOCIETIES

NORTHWESTERN COLORADO MEDICAL SOCIETY

A special meeting of the **Northwestern Colorado Medical Society** was held at Steamboat Springs on August 21, at 1 p. m., in the auditorium of the Steamboat Cabin Hotel. The society had as guests some of the executive officers of the State Society and others from Colorado Springs who participated in the program. The meeting was called to order at 1 o'clock and the program was taken up immediately. Dr. J. B. Crouch of Colorado Springs gave an address on the subject of the Differential Diagnosis of Chest Conditions which he illustrated with x-ray plates. Dr. F. B. Stephenson talked on the subject of x-ray examination of the gallbladder in the light of recent discoveries. Dr. G. A. Boyd, President, and Dr. G. H. Curfman, President elect of the State Society, both addressed the local society, Dr. Boyd taking occasion especially to emphasize the importance of physicians interesting themselves in the movement for periodic health examinations.

At the close of the program a business meeting was held at which officers for the ensuing year were elected. The result of the election will be announced in a later report.

Those present at the meeting were Dr. D. M. Cook of Craig, Dr. J. T. Male of Yampa, Dr. L. Little of Hayden, Dr. E. L. Morrow of Oak Creek, Dr. W. W. Sloan of Mt. Harris, Dr. Florilla M. White of Palm Springs, California, now sojourning in Steamboat, Drs. G. A. Boyd, J. B. Crouch, and T. R. Knowles of Colorado Springs, Dr. G. H. Curfman of Salida and Dr. F. B. Stephenson of Denver.

A number of ladies were present at the dinner which was given by the local society in honor of the visitors.

COLORADO GENERAL HOSPITAL

With the summer months present and with a slump expected in attendance to this institution, which did not materialize, the figures covering the activities are nearly on a par with those of recent months gone by.

The Superintendent's Office has given out the following information for comparison with that of previous months.

Number of patients in hospital July 1.....	84
Number of patients admitted during July	123
Newborn included in above	9
Number of patients discharged during July	132
Number of patients died in hospital during July	4
Number of patients in hospital August 1.....	67

Of those who entered 32 were men, 58 women and 33 children. The Oto-Laryngology Service had the largest number with General Medicine, Surgery and Obstetrics following closely.

The first of July saw the change in the clinic hours in the Out-patients' Department from 12-2, hours which have been observed for many years, to early morning hours 8-10. There was at first some confusion chiefly on the part of the patients, but this has been straightened out for the most part. Many of the Staff are very favorable to the change, but it is early to predict a permanent change to this new time. The attendance fell off to some degree, a total of 2,424 were treated or a daily average of 93, of which 16 were new cases. In addition 76 applicants were refused admission

to the clinic for various reasons, chiefly financial, or practically 16 per cent of those applying for admission for the first times. Inquiries were sent to ten physicians regarding applicants, seven of whom answered, and of these four disapproved free treatment, and three favored free treatment for the cases under inquiry.

Mention should be made of the new Department of Physiotherapy since it has been under way now long enough for the staff to be aware of its existence. When the Staff becomes better acquainted with it and its possibilities more use will no doubt be made of it. During the month of July 44 patients were treated for a total of 615 treatments. These included actinic ray, massage exercise, whirlpool, various forms of electro-therapy, radiant heat and infra-red radiation. Physicians when in the institution should make it a point to become acquainted with this well equipped department.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

The summary of the activities of this institution for July is very similar to those of previous months. Figures given out by the Director's Office are as follows:

Patients in hospital July 1.....	41
Patients admitted during July	40
Patients discharged during July	13
Patients dying during July	1
Autopsies for the month	1
Patients in hospital August 1	55
Counties represented	11

Of those present in the hospital at the end of the month 33 are males and 22 females. During the month four women were sent to Pueblo.

The Out-patient's Department has had the usual amount of activity during the past month, the figures are approximately those of the past months and the various interests much the same.

E. R. MUGRAGE.

THE THREE ASPECTS OF A DOCTOR

Dr. Euricius Cordus (1486-1535).

Tres medicus facies habit; unam quando rogatur Angelicam; mox est, cum juvat ipse Deus; Post ubi curato poscit sua praemia morbo, Horridus apparet, terribilisque Satham.

This has been freely translated:
God and the doctor we alike adore
When on the brink of danger, not before.
The danger past, both are alike requited.
God is forgotten, and the doctor slighted.

Or, it has been rendered more literally:
Three faces wears the doctor: when first sought
An angel's!—and a god's the cure half wrought:
But when that cure complete, he seeks his fee,
The devil then looks less terrible than he.
—From "Valerius Cordus and the Discovery of Ether" by Prof. Chauncey D. Leake, University of Wisconsin.

The economic loss from mental disease in this country is estimated at \$300,000,000 annually.

The average American family of five persons consumed 824.5 pounds of dressed meat last year.

BOOK REVIEWS

Handbook of Diseases of the Rectum. By Louis J. Hirschman, M.D., F.A.C.S. Ex-Chairman, Section on Gastro-Enterology and Proctology, A.M.A.; Ex-President American Proctologic Society; Professor of Proctology, Detroit College of Medicine; Proctologist, Harper and Woman's Hospitals; Consulting Proctologist ess, Wayne County Hospitals, Detroit, U. S. to Detroit City Receiving, Evangelical Deacon-A. With two hundred and fifty-two illustrations, mostly original and five colored plates. Fourth Edition Revised and Rewritten. Price \$6.50. St. Louis: The C. V. Mosby Company, 1926.

In presenting his book, the author calls attention to the scant attention which this branch of medicine is given in many colleges where the subject is dismissed with a lecture or two delivered as a part of the course on general surgery. Many practitioners will agree that this subject is worthy of considerable study in light of their experience with the treatment of pruritis and a seemingly easily analyzed symptom which often baffles the whole array of therapeutic measures. It is evident that the complete analysis of the etiology, pathology and treatment of this condition requires considerable attention. The author gives a good description of this condition and mentions seven principal etiologic factors: namely, any disease of the rectum or anus; any skin condition affecting the anal region; as a reflex from the adjacent viscera; constitutional disorders; dietary disturbances; parasites; and irritation from clothing, detergents or moisture; and under each heading discusses the long list of causes and their therapy.

In the second chapter, the author discusses diseases of the rectum under presenting symptoms and their differential analysis. This chapter is a great aid in the analysis of cases where the diagnosis is not apparent. It is a logical manner of discussing symptomatology, since it is evident that patients usually come to the physician because of pain or bleeding or some other symptom and it is only upon careful analysis that a correct diagnosis is made.

Sacral anesthesia receives considerable discussion, and the author emphasizes the great advantages of this method over the older forms of general anesthesia. The development of the use of local and sacral anesthesia in the treatment of anal and rectal diseases has progressed to such a stage where approximately 95 per cent of all cases of rectal and anal diseases are amenable to treatment without the use of general anesthesia.

Anal fissure, abscess of the anorectal region, fistula, hemorrhoids, polyposis, proctitis and sigmoiditis, and prolapse of the anus and rectum are discussed at length and the specific measures for their therapy outlined. A chapter on Dysentery by J. L. Jelks is included. This chapter discusses the various types of dysentery, their etiology, symptomatology and treatment. The author describes a simple and effective hemorrhoidectomy, an original method of his, which has gained considerable favor among those who have used it.

A. J. CHISHOLM.

Diseases of the New-Born. A Monographic Handbook. By John A. Foote, M.D., Professor of Diseases of Children, Georgetown University Medical School. Including Chapters by Prentiss Wilson, M.D., James M. Mosher, M.D., William F. O'Donnell, M.D., Frederick J. Eichenlaub, M.D., and John F. O'Brien, M.D., of the Faculty of Georgetown Medical School. Illustrated. Philadelphia and London and Montreal: J. B. Lippincott Company.

This little monographic hand book contains the gist of all the important recent information regarding the diagnosis and treatment of diseases of the new-born. It is written by one well known in American Medical literature.

The chapters on intracranial hemorrhage, breast-feeding, congenital heart disease and the methods and procedures in diagnosing and treating conditions in the new-born are so well written and illustrated that all who are interested in the diseases of children should read the book.

WILFORD W. BARBER.

Scoliosis Rotary Lateral Curvature of the Spine. By Samuel Kleinberg, M.D., F.A.C.S., Assistant Surgeon, New York Hospital for Ruptured and Crippled, Member of the American Orthopedic Association, Chief of Orthopedic Service, Israel Zion Hospital of Brooklyn, Consulting Orthopedic Surgeon, Rockaway Beach Hospital, Attending Orthopedic Surgeon, Israel Orphan Asylum, Associate Surgeon, Lebanon Hospital, New York. Paul H. Hoeber, Inc., New York. Price, \$6.00.

This book, containing some 300 pages and 140 illustrations, depicts very aptly the subject of Scoliosis, or rotary lateral curvature of the spine. Following an introductory chapter on the sociological aspect of the crippled, the author discusses very plainly the physiology, anatomy, pathology and classification of spinal curvature. Then, in a few short chapters, he considers the examination of the patient, recording the patient's condition, symptoms and prophylaxis, all in a brief but concise manner. Finally, and in a very thorough and exact way, he describes the various means of treatment. I believe the discussion and description of his method of handling cases constitutes by far the best chapter of the book. He first considers under this, gymnastic exercises for the mild cases, various types of casts and braces, and the means of application. Then he describes the operative treatment with the preliminary care, the operation itself, and the post-operative treatment. The author uses his own operation which is a modification of the Hibbs and Albee which he claims maintains a good correction.

Dr. Kleinberg certainly deserves credit for the presentation to the medical profession of such a scientific and practical work. He makes the outlook for scoliotic patients seem much more cheerful and gives the orthopedic surgeons, particularly, an incentive to put forth more effort in those cases which have heretofore been considered quite hopeless.

The style in which it is written, coupled with the large type, makes it a pleasant reading. All in all, it is a splendid work for those interested in the subject of the cripple, and particularly is a valuable work both as a text book and a reference for the orthopedic surgeon.

HAMILTON I. BARNARD.

THE COLORADO STATE MEDICAL SOCIETY

(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 21, 22, 23, 1926.

OFFICERS, 1925-1926

President, George A. Boyd, Colorado Springs.

President-elect, George H. Curfman, Salida.

Vice-Presidents, 1st, Edward Delehanty, Denver; 2nd, W. E. Hays, Sterling; 3rd, E. H. Munro, Grand Junction; 4th, L. E. Likes, Lamar.

Secretary, F. B. Stephenson, Denver.

Treasurer, W. A. Sedwick, Denver.

Delegates to the American Medical Association:

Senior, C. N. Meader, Denver, term expires 1926.

Alternate, B. B. Blotz, Rocky Ford, term expires 1926.

Junior, L. H. McKinnie, Colorado Springs, term expires 1927.

Alternate, W. T. Little, Canon City, term expires 1927.

Councilors:

	Term expires
District 1. Ella A. Mead, Greeley	1930
District 2. G. P. Lingenfelter, Denver	1929
District 3. John R. Espey, Trinidad	1928
District 4. W. W. Crook, Glenwood Springs	1926
District 5. A. J. Nossaman, Pagosa Springs	1927

Constituent Societies, Times of Meeting, Secretaries

Arapahoe County—Last Monday of each month; secretary, H. H. Alldredge, Englewood.

Boulder County—Second Thursday; secretary, Margaret Johnson, Boulder.

Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

Delta County—Last Friday of each month; secretary, H. A. Smith, Delta.

Denver County—First and third Tuesday of each month; secretary, L. V. Sams, Denver.

El Paso County—Second Wednesday of each month; Secy., J. B. Crouch, Colorado Springs.

Fremont County—Fourth Monday of each month; secretary, Edgar C. Webb, Canon City.

Garfield County—Last Thursday of each month; secretary, O. F. Clagett, Rifle, Colo.

Huerfano County—Third Thursday of each month; secretary, S. J. Lamme, Walsenburg, Colo.

Kit Carson County—Quarterly, first Monday of December, March, June and September; secretary, Wm. L. McBride, Seibert, Colo.

Lake County—First Thursday of each month; secretary, J. C. Strong, Leadville.

Larimer County—First Wednesday of each month; secretary, V. E. Cram, Fort Collins.

Las Animas County—First Friday of each month; secretary, W. L. Newburn, Trinidad.

Mesa County—First Tuesday of each month; secretary, E. H. Peterson, Grand Junction.

Montrose County—First Thursday of each month; secretary, C. G. Brethouwer, Montrose.

Morgan County—Time of meeting (not reported); secretary, Harry A. Johnson, Fort Morgan.

Northeast Colorado—Second Thursday in each month; secretary, E. P. Hummel, Sterling.

Northwestern Colorado—Second Thursday of each month; secretary, E. L. Morrow, Oak Creek.

Otero County—Second Thursday of each month; secretary, Guy Ashbaugh, Rocky Ford.

Prowers County—First Tuesday of each quarter; secretary, Geo. S. Williams, Lamar, Colo.

Pueblo County—First and third Tuesday of each month; secretary, J. F. Snedec, Pueblo.

San Juan Medical—Second Saturday, January, April, July and October; secretary, H. A. Lingenfelter, Durango.

San Luis Valley—Time of meeting (not reported); secretary, P. K. Dwyer, Alamosa.

Weld County—Third Monday of each month; secretary, C. A. Ringle, Greeley.

STANDING AND SPECIAL COMMITTEES

Committee on Scientific Work: J. B. Crouch, chairman, Colorado Springs; E. D. Downing, Woodmen; Fred M. Heller, Pueblo.

Committee on Local Arrangements: J. H. Brown, chairman, Colorado Springs; C. S. Morrison, Colorado Springs; O. R. Gillett, Colorado Springs.

Committee on Credentials: F. B. Stephenson, chairman, Denver; Margaret Johnson, Boulder; Harry A. Johnson, Fort Morgan.

Committee on Public Policy: D. A. Strickler, chairman, Denver; Edward Jackson, Denver; Jean Gale, Denver; W. W. King, Denver; Crum Epler, Pueblo; C. A. Ringle, Greeley; O. M. Gilbert, Boulder.

Committee on Publication: T. E. Carmody, chairman, Denver (term expires 1926); W. H. Crisp, Denver (term expires 1927); C. S. Bluemel, Denver (term expires 1928).

Auditing Committee: G. W. Miel, chairman, Denver; J. J. Mahoney, Colorado Springs; Frank L. Dennis, Colorado Springs.

Committee on Necrology: W. A. Palmer, chairman, Castle Rock; F. W. E. Henkel, Rifle; Ben Beshoar, Trinidad.

Committee on Medical Education: C. N. Meader, chairman, Denver; F. M. Heller, Pueblo; J. J. Waring, Denver.

Committee on Social Medicine: R. P. Forbes, chairman, Denver; J. A. Wenk, Colorado Springs; J. J. Pattee, Pueblo.

Committee on Medical Literature: W. A. Jayne, chairman, Denver; G. B. Webb, Colorado Springs; A. J. Markley, Denver.

Committee on Hospitals: C. N. Meader, chairman, Denver (term expires 1926); W. T. Little, Canon City (term expires 1927); C. O. Giese, Colorado Springs (term expires 1928).

Committee on Military Affairs: Cuthbert Powell, chairman, Denver; Crum Epler, Pueblo; E. B. Liddle, Colorado Springs.

Committee on Careers of Members: C. D. Spivak, chairman, Denver; Philip Hillkowitz, Denver; A. Freudenthal, Trinidad.

Committee to Study Model Constitution and By-Laws: C. N. Meader, chairman, Denver; Melville Black, Denver; W. H. Crisp, Denver.

Committee to Confer with Boy Scouts of Colorado: E. B. Swerdfefer, chairman, Denver; T. R. Love, Denver; Harry Canby, Denver.

Curator of 1925 Exhibits: E. D. Downing, Woodmen.

Committee to Consider Full-Time Secretary: Melville Black, chairman, Denver; Edward Jackson, Denver; B. B. Blotz, Rocky Ford.

TUNING IN

Leprosy in United States

A conservative estimate of the prevalence of leprosy in continental United States places the number at approximately 1,200. A reliable estimate of the number of lepers who have resided in the United States is well nigh impossible, and for many reasons. It is probable that many times leprosy has been confused with other diseases with which it has symptoms in common; furthermore, leprosy has not been consistently reported to health officials, and the public records must, of necessity, represent but a surface scratching. Then, too, in many instances physicians have hesitated to make a report of known cases of leprosy because of the unwarranted hysteria that would have been provoked by the report of the presence of a case of leprosy in a neighborhood where no suitable facilities existed for isolation and treatment, and where the leper had been permitted and encouraged to move on. Sometimes this method of dealing with lepers has been most humiliating to the leper and disgraceful to the community.—United States Public Health Service.

Syphilis and Moral Delinquency

The 1925 annual report of the surgeon general of the United States Public Health Service gives data for thirty-nine correctional and penal institutions as follows:

Patients admitted:

Syphilis	4,150
Gonorrhea	3,836
Chancroid	122
Patients discharged as noninfectious.....	4,314
Treatments given	242,525
Doses of arsphenamin (or similar product administered)	23,813
Wassermann tests made	37,242
Microscopic examinations for gonococcus infection	10,573

At the Denver Florence Crittenton Home, where the Wassermann test was made routinely on delinquent girls, averaging an age of 16, 46 per cent of the mothers were found syphilitic.

Mateer, who definitely accepts an interrelation between congenital syphilis and delinquency, found 12.9 per cent with a positive Wassermann reaction among an unselected group of 216 dependent children ranging in ages from 1 to 19 years. All of these children were wards of the state.

Three Years of Toxin-Antitoxin Work Show Good Results

Dr. Charles K. Skinner, health officer of Hudson, N. Y., a city of 11,755 population, reported to the department on June 4, 1926, that there had been no case of diphtheria reported in that city during the preceding year. Toxin-antitoxin inoculation of school and preschool children has been carried on in Hudson annually since 1923. During the previous five years there had been an annual average of twenty-eight cases of diphtheria reported in Hudson, so this year of freedom from the disease is apparently the early indication of the value of toxin-antitoxin as a real safeguard for the child health of this city.—N. Y. Health Department.

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Alkali Disease

A disease of cattle, commonly known as "alkali disease" or "milk sickness," has long been known in the Pecos valley of New Mexico and Texas. A disease of human beings, commonly known as "milk sickness," also occurs in Pecos valley, and has generally been identified with the disease of animals.

The cause of this disease has been obscure. Some have thought it was produced by drinking alkali water; some have thought it due to a pathogenic organism; others have thought it caused by a poisonous plant, the rayless golden-rod (*Aplopappus heterophyllus*) being especially suspected.

"Milk sickness" or "trembles" has been known in the central and eastern states for more than a century. It has been shown, however, that most, if not all cases of milk sickness in the east, are caused by the plant *Eupatorium urticifolium*, commonly known as white snakeroot.—United States Department of Agriculture.

Help for the Doctor

The Medical Society of the County of Kings, Brooklyn, one of the oldest in the country, has just established the interesting precedent of admitting laymen to associate membership. The avowed reasons for this novel departure are that the inclusion of influential citizens would create friends of medical progress and enable the public to assist the profession in its efforts to restrain unqualified practitioners and prevent the employment of harmful methods. Whether or not this plan will work out as effectually as its sponsors hope, still remains to be seen. In the meantime it can scarcely be regarded as anything but a step in the right direction.

There are other fields than that of popular medical education in which laymen can do much to further the efforts of physicians. Thousands of lives and vast sums of money are annually exacted as tribute to unscrupulous nostrum vendors. There are dozens of so-called consumption cures and cancer cures which do a tremendous amount of harm, owing to the fact that faith in them keeps persons away from competent practitioners until it is too late to save their lives. There are means of coping with this growing evil, but they are in the hands of legislators and business men and not in those of the doctors.

There is another matter in which physicians stand in grave need of the co-operation of the lay public. Compulsory vaccination laws are under fire. Bills have been introduced in state legislatures which, if they became laws, would prevent the manufacture of smallpox vaccine, diphtheria antitoxin and most other biological products which play so large a part in modern medicine.

If the comparative inactivity of physicians and men of science is a trustworthy index of their reaction to these attacks, even they do not perceive the reality of the menace which threatens their calling and all the millions whose lives depend upon its free and proper exercise. Unless the situation is promptly and vigorously taken in hand it will inevitably become worse before it can become better.—Saturday Evening Post.

Official figures of the United States government show that 119,568 men and women in the armed forces of the nation lost their lives as a result of the World War. These included 36,815 killed in action; 13,536 who died of wounds; and 68,941 who died of diseases and other causes.—Dearborn Independent.

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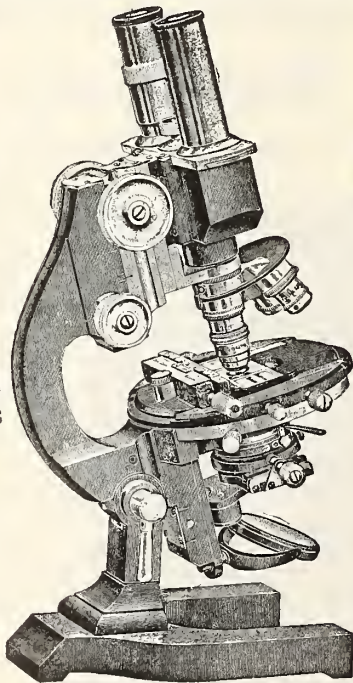
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The Mother Business

A woman who is so fashionable that she is almost a stranger to her little son, decided that it was about time she became acquainted with him. She read old books about the things mothers used to do, such as singing lullabys and rocking to sleep. And then, one night, she sent her nurse out, and stayed at home, just for a new sensation. She crept into her little son's bedroom, and began to croon, as she pushed the bed about, "Hush-a-bye, baby, on the tree-top."

The child turned a wondering eye on her, and then, shifting his position, said sleepily:

"I say, cut that stuff out, Mother. A fellow wants to get some sleep."

The next night she was at the Mixed Ver-mouth as usual.—London Express.

A Glimpse Into the Future

In the past decade, since the onset of Roentgen's celebrated work with the Roentgen ray, Madam Curie's discovery and development of radium, Ling's use of exercise and massage, d'Arsonval's application of electricity and Rollier's demonstration of the physiology of sunlight, much has been written on the various radiological and physical principles. Too much has been written which has been of negligible value. Instead of increasing the evaluation of these therapeutic measures and establishing them as definite accepted therapeutic adjuncts in the obliteration of disease, this superfluous, unauthoritative gossip has turned many observers and readers among the practitioners against radiotherapeutics and physical therapy.

It is the object of the Archives of Physical Therapy to become a truly educational monthly publication—one which produces and propagates authoritative knowledge.—Archives of Physical Therapy X-Ray Radium.

Mr. Ford Criticizes the Doctors

According to the Boston Transcript, Henry Ford has declared it to be his conviction that the doctors are on the wrong track today. "If the doctors would invent something to prevent people from being sick," he is reported to have said, "they would get so much money that they would not know what to do with it. I don't think the doctors have waked up yet."

Health authorities, many of whom are physicians, have emphasized for years the need for more general use of preventive measures, but on the whole we are inclined to agree with Mr. Ford. A large number of physicians have not grasped the opportunities to preach prevention to their patients. It is true that many organizations of medical practitioners have endorsed the idea of the periodic physical examination, but how many of the individual members of these societies have urged their patients and the families of their patients to have such examinations? In spite of the fact that scientific medical bodies endorsed vaccination to prevent smallpox which has been advocated for more than a century, how many physicians advise their clientele to have the babies vaccinated when they are six months of age? Most of them wait until the mother brings the child to the doctor, stating that the school "won't admit John or Mary unless she is vaccinated." Despite the fact that toxin-antitoxin is recognized as a preventive of diphtheria how many physicians urge it in the families which they attend?—Health News, New York State Department of Health.

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Be It Resolved, That this Congress urge upon the fathers and mothers of the land that they seek this protection for their young children, either from their family physician or by taking advantage of the immunization service afforded by boards of health, clinics, health centers, and boards of education, to the end that diphtheria may be eliminated from the United States.—American Health Congress.

Pacific Science

After a year of preliminary work, the Pan-Pacific Research Institution has been formally organized by its president, Dr. David Starr Jordan, in order to bring about closer relationships between all groups of research workers about the Pacific. It will carry on such work on its own account and, for the present, will consider primarily the problems of food, health and population.—Science Service.

Dick Test

1. Dick tests made on rural and suburban school children and children in city institutions gave a higher percentage of positive reactions among the rural and suburban groups.

2. A relatively greater immunity was found to exist in males than in females, and this difference was found to increase with age.

3. When two or more children from one family were tested there was a tendency for the reactions on the different children to agree. When disagreement occurred, the younger children were more often positive and the older children more often negative, although the reverse was not rare.

4. Differences in reactions caused by toxins produced by different streptococci of scarlatinal origin are noted, with the suggestion that different strains of scarlet fever streptococci may produce different toxins.—United States Public Health Service.

The Immovable East

The head of an Oriental town, a Mohammedan, being asked by the government to reply to certain questions relating to his city, sent in the following paper:

Question: What is the death rate per thousand in your city?

Answer: In my city it is the will of Allah that all must die; some die old, some young.

Question: What is the annual number of births?

Answer: We don't know; only God can say.

Question: Are the supplies of drinking water sufficient and of good quality?

Answer: From the remotest period no one has ever died of thirst.

Question: What is the general hygienic condition of your city?

Answer: Since Allah sent us Mohammed, his prophet, to purge the world with fire and sword, there has been great improvement. And now, my lamb of the West, cease your questioning which can do no good either to you or anyone else.—The Lancet (London).

Cheap Land

The United States paid \$295 an acre for the Virgin Islands, \$35.80 an acre for the Canal Zone, 27 cents for the Philippines, and 2 cents for Alaska.—The Dearborn Independent.

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WILLIAM ALEXANDER SEDWICK
President-Elect of the Colorado State Medical Society

WILLIAM ALEXANDER SEDWICK

Dr. W. A. Sedwick, president-elect of the Colorado State Medical Society, was born at Solomons, Maryland, July 9, 1869. He was educated in the public schools and the University of Maryland where he graduated in medicine in 1893. He was an interne and assistant in the United States Marine and Public Health Service. He came to Colorado in 1897 and practiced for five years in Durango where he served as president of the San Juan-La Plata County Medical Society in 1903. He has been engaged in the practice of ophthalmology in Denver since 1905 with the exception of two years in army service during the World War. He is a member of the Academy of Ophthalmology and Otolaryngology, The Colorado State Ophthalmological Society and the American College of Surgeons. He has faithfully served his County and State Society having been Treasurer of the Colorado State Medical Society for twelve years.

Dr. Sedwick has the respect and good will of his fellow practitioners throughout the state. We hope and predict for him a most successful term of office.

THE FIFTY-SIXTH ANNUAL SESSION

Typical Colorado weather favored attendance and enjoyment at the annual meeting just closed. A registration of 371, including a number of visitors from other states, exceeded that of last year by about thirty.

The Society was at last honored by the presence of a representative from the American Medical Association, Dr. Morris Fishbein. His timely talks before the House, the general meeting and the Women's Auxiliary were of much interest and tended to cement the relationship of the Colorado profession to the parent organization—to the secretary's mind, of even greater import than the matter of his discussions, helpful as they were. Such contact should be an aim at each annual session.

Dr. Fishbein's address to the public was listened to intently by a large lay audience. Remarks were heard there and on the street

which indicated that public interest had been aroused to a gratifying extent.

The scientific program went along smoothly and at no time was the schedule seriously upset. Interest was intent to the last number on the program, papers were generally good and discussions pertinent. Several papers far exceeded the allotted fifteen minutes. Is it too much to hope that future committees will insist upon compliance with this provision of the by-laws?

The proceedings of the House of Delegates will appear in full in the December issue of Colorado Medicine. Only two of many measures adopted will be mentioned here:

1. A general revision of the by-laws to clarify certain passages and improve the machinery of procedure and enforcement. One amendment provides an increase in the general fund to meet the running expenses of the Society, this being accomplished by a diversion of part of the per capita assessment heretofore devoted to the special fund for education of the public in medical affairs.

2. Recommendation that at the earliest feasible time a full-time executive secretary be employed. (More of this will appear from time to time in Colorado Medicine in an attempt to acquaint the members with the purposes and possibilities of such a plan and enable delegates to vote decisively, perhaps at the 1927 session, upon the proposition immediately to undertake it.)

Constituent societies are commended for their interest shown in providing scientific exhibits. Colorado is one of very few states which undertake them.

Considered from the standpoints of general meetings, House procedure, scientific exhibits, commercial exhibits and entertainment, the session unqualifiedly falls into the class of the highly satisfactory ones.

F. B. S.

MORE INITIATED NONSENSE

In November of this year the Colorado electorate will be called upon to vote for or against several initiated amendments, among which is Amendment Number Three relating

to the practice of dentistry within the state. We have been authoritatively informed that this measure is being sponsored only by an advertising corporation whose headquarters are outside the state. The amending act would remove the present requirement of an examination by the State Dental Board. In other words it would enable transient and migratory dentists from any state to open offices and practice in Colorado without other evidence of fitness than that somewhere, some time under some state law, good, bad or indifferent, they had practiced dentistry.

After a careful investigation we are convinced that this initiated bill was conceived in the iniquity of selfishness and, if born at all, it will be born in the sin of carelessness and indifference on the part of those who know the inevitable heinousness of a lowering of professional standards for the convenience and profit of the privileged incompetents. Lower the dental standards for the convenience of those who are unwilling or unable to show fitness to practice dentistry and it will not be long until some of their ilk will pertinently ask why the same rule does not apply to the practice of medicine. Yield an inch in our professional requirements in the state and commercial healers of every type will soon sniff the scent of an easy bait and, like a pack of wolves, will come to fatten on the unprotected public.

Initiated Amendment Number Three is a pernicious bill and should be defeated. It is vigorously opposed by the Colorado Dental Association. It not only needs the "No" from every one of our members but from every one who looks to us as health advisers. We therefore urge an aggressive opposition to this measure which, if carried, will make Colorado the dumping ground for the unfit in dentistry.

HEALTH EDUCATION FOR THE EDUCATED

Certainly every doctor is interested in individual and community health. He believes that he is giving without stint to this cause. He is also aware that the greatest impediment to its advancement is the failure on the part of the public to appreciate medical val-

ues. That which is proven and that which is merely asserted are always confused in the minds of the laity. Obviously then what the doctor knows must be conveyed to the public in language that the public can understand. But apparently this is no easy task.

Dr. Livingston Farrand, President of Cornell University, is quoted in the *Public Health Nurse* in which he gives the following ten points as the minimum essentials for educated people to know about health.

A knowledge of the physiological basis for sound health habits.

A knowledge of the types, amounts and proportions of the various food elements essential to the proper nutrition of the body.

A reasonable acquaintance with the principles of normal mental action and the conditions underlying the more common variations from the normal state of mind.

A general understanding of the sex instinct.

A knowledge of the factors determining infection and of the combative protective qualities of the body.

A knowledge, gained early, of the causes and the prevention of the degenerative diseases in order to offer a reasonably favorable prospect of passing middle life without a break-down.

A knowledge of the health hazards of the environment, such as water and milk supplies, industries, etc., and of protective measures related to these hazards.

An appreciation of the need for frequent dental and medical examination.

An intelligent basis for the wise choice of dental and medical advisors, together with a scientific attitude regarding the nature of medicine.

A knowledge of important health problems the community is facing. Methods of attacking these problems. Results to be expected from an intelligent community action.

But these or any other ten points cannot take wings and fly to their intended destination. They must be organized into the very warp and woof of our educational system, so that an educated person will know as much about health as he does about latin or algebra. Fortunately many public school systems are incorporating Health Education in their required curricula, but much of the good of this is offset by the failure on the part of teachers who, while educated in pedagogy and the subjects they teach, are as ignorant of health matters as physicians are of pedagogy. It is not unusual for teachers to spend their hard earned money on the most blatant charlatans. It seems strange to see such educated people who have studied physics, chemistry, biology, etc., and apparently accepted these sciences

at their face value but reject their merits when applied to matters of health.

Normal schools and colleges might well assist in this educational program by offering a required course in the fundamentals of health education stressing the accepted truths of science as applied to health. Thus only can we hope that all or most of our educated people will come to know the minimum essentials of health advocated by President Farrand. And until some such system is worked out whereby educated people more generally grasp the scientific viewpoint of health as understood by physicians, the problem of leavening the masses with such information will remain unsolved.

INSTRUCTION IN PHYSIOTHERAPY

Physiotherapy is rapidly taking a more important place among the alleviating and curative agencies at our disposal. But a review of the recent work of Sampson on the Practice of Physiotherapy has convinced us that, if results are to be had, the specific indications for and the accurate technique of applying these various modalities must be as thoroughly mastered as is the appropriate use of specific drugs. We are all familiar with the fact that such specifics as the antitoxins, mercury, insulin, digitalis, etc., if not given in the proper way and in sufficient amounts, are almost worthless. The same is doubtless true in the use of physical agencies. The physical and chemical changes that are brought about by the use of diathermy, infra red and ultra violet rays, the x-ray, etc., are as worthy of the critical attention of the physiologist and therapist as are any other such changes that take place in the body. Likewise they are probably as difficult to understand. Their effective use can no more be learned from the instructions contained in the literature buried in the excelsior packing of physiotherapy machines than can digitalis by the instructions on the bottle.

With the growth in popularity of these various types of treatment of diseases, there is a growing need for more authoritative instruction in this field. At the next Clinical

Congress of Physical Therapy the rational teaching of this subject to medical students will be discussed. Already some medical schools have created the facilities for such instruction. But if it has the value claimed by its exponents, a definite place should be placed in the curriculum. For those beyond the medical school period graduate courses and clinics conducted by experienced teachers is an urgent need to prevent its discredit by misapplication.

HEALTH SCIENCE

We have more high-grade medical schools than any other country in the world. Our national wealth has increased rapidly. No people has ever seen such prosperity before. Large amounts of money are spent from private and public funds in the field of health, and yet we are far behind our known possibilities in the relief of humankind from its many microscopic enemies and in the application of the facts of physiology and hygiene to our daily living.

The reason for this lag in our health program has many causes. Primarily, though it comes from the lack of knowledge of simple biological facts on the part of the public and from the emphasis in general upon sickness rather than upon health. The very name "medicine" is a definite handicap in our health program. To almost all of our people it means something out of a bottle or a round object to be swallowed. If medicine had some such name as "health science" a considerable amount of traditional thinking could be overcome. There is not likely to be any change in the name, as human things go, so that it is necessary for the term to take on a new significance in the minds of the young people of the country. There is not likely to be much change in the thought along this line of the present adult.

History brings out clearly the fact that stupidity is a greater power in the majority of human lives and in great human decisions than all of the influences of culture and learning.—Ray Lyman Wilbur, M.D., Better Health.

PRE-BUDDHIST HINDOOS WONDERED WHAT MADE THE KICK IN BOOZE

They Knew Enough

The Hindoos of 400 B. C., or thereabouts, knew all about fermented liquors, but they did not recognize the stuff that gave the kick as a distinct substance.

This is revealed in an ancient book that has just been brought to light. The Arthasastra, as it is called, was written about 300 B. C. and has been translated into English by Dr. R. Shamasastri. While it primarily deals with governmental problems and administrative matters, it contains many facts of scientific interest mentioned incidentally. It is compiled of still more ancient works of a similar character and this fact adds greatly to its value because it gives us some notion of conditions in India before Buddhism became prevalent. The scientific items have been gathered together and annotated by Prof. E. O. von Lippmann and published in a recent scientific journal.—Science Service.

CO-OPERATION IN MEDICINE*

GEORGE H. CURFMAN, M.D.
SALIDA, COLO.

The last fifty years has been called the Golden Age of Medicine. The phenomenal progress in this period is best measured by a survey of vital statistics. A study of these reveals the fact that eighteen years have been added to the life span of the average person in the United States since 1855. At that time the average duration of life was forty years, while today it is fifty-eight years. In the past twenty-five years the decline in death rate amounts to 30.8 per cent. The legitimate causative factors in this decline are the scientific achievements and organization of modern medicine, the advance of modern surgery, the growth of measures to protect the public health, and the education of the public to the value of preventive medicine. George David Stewart¹ in a recent address ventured the prediction that the future development of medicine lies first in co-operative effort and second in the field of bio-chemistry or physio-chemistry. As practitioners the advance in the field of bio-chemistry concerns us secondarily in that we utilize the fruit of the laboratory worker only in a clinical way, while the field of co-operative effort concerns us in every phase of medical practice.

Co-operation does not imply, however, that individualism in medicine should be lost sight of. Lloyd Paul Stryker² recently said:

"There is no field of endeavor in which individualism is more necessary than in the medical profession. The doctor is an individualist. It is both well and necessary that this is so. Granted the proper professional training and knowledge, the physician should be free to exercise his best judgment and in his valiant struggle against disease and death to bring to bear unhampered all his skill, personal judgment, knowledge and experience which he can summon to the mighty combat in which daily he engages. No friend of the medical profession could bemoan this

or wish to change it. And yet there are times when the individual physician, oppressed by the manifold duties and responsibilities which flow from the high calling which he follows, is prone to forget that the attainment of the great ends to which he has dedicated his life—the safeguarding and protection of the public health—can best be served by combined action rather than by working alone.

"Individualism is vital to your welfare, it should be fostered and encouraged, but individualism which refuses to unite and to cooperate in order to bring about the greatest good for the greatest number may become a danger and a menace to the accomplishment of the great aims for which you have so nobly dedicated your lives, your strength and your high courage."

The need for co-operation is amply demonstrated in the further study of vital statistics. Noteworthy lessening of the death rate has been made in some of the acute infectious diseases. In 1900 the death rate from diphtheria was 40.4 per 100,000 in the registration area of the United States. In 1923 this had been reduced to 12.4 per 100,000. Despite this glorious achievement of organized medicine, the end is not yet. At present 10,000 lives are sacrificed needlessly from diphtheria in the United States each year. Ninety per cent of these deaths occur in children under five years of age. All this, despite the known fact that the use of toxin-antitoxin will confer an almost complete immunity.

The same remarkable advance and the same challenge for continued organized endeavor is seen in the partial conquest of typhoid fever. In the year 1900 it took a toll of 31.3 per 100,000, while in 1923 the toll was 3.6. In 1923 the death toll in the registration area was 2,736. Striking as the reduction of the death rate has been, yet with the use of typhoid vaccine and adequate sanitary measures it could have been practically eliminated.

Likewise the battle against smallpox, a

*Presidential address delivered at the fifty-sixth annual meeting of the Colorado State Medical Society, Colorado Springs, Sept. 21, 22, 23, 1926.

preventable disease, is not yet won. In the past twenty-five years it showed a very low mortality rate, averaging 0.1 during that period; yet in 1924 thirty-five states reported 45,120 cases, with 845 deaths. The comparatively recent virulent outbreak in Colorado pointedly emphasizes the importance of insisting on vaccination. These and many other infectious diseases await only the social acceptance of medical knowledge to make their conquest complete.

With the constant lengthening of life which has come as a result of our scientific war on infectious diseases, there have arisen new problems in medicine. The extension of life from forty to fifty-eight years has given rise to a marked increase of death from degenerative diseases. It has extended the average life into that decade of maximal incidence to cancer, diabetes and cardiovascular diseases. Some have contended that increased fatigue incident to modern civilization is also a causative factor. Be that as it may, vital statistics show a striking increase which should give every physician concern. In the registration states in twenty-five years, deaths from heart disease have increased from 137.4 to 233.5 per 100,000; acute and chronic nephritis, from 88.7 to 96.3; diabetes mellitus, from 11.0 to 22.5; and cancer, from 64.0 to 106.6. Surely this mounting death rate should press home to each physician the need for periodic health examinations in order to detect the early signs of these diseases. "Birthday Health Examinations" was the slogan of Dr. Haggard, ex-president of the A. M. A., and the energetic campaign of that association for periodic examinations should enlist the co-operation of each physician.

Surgery since the introduction of anesthesia and the epochal discoveries of Pasteur and Lister has contributed much to lengthen the span of human life. It is impossible to ascertain the number of lives spared by this medium, but comparative statistics furnish some discomfiting information in this field. Guerry in a recent address states³:

"1. Appendicitis is still by far the most important acute abdominal disease that surgeons are called upon to treat.

"2. During the year 1925, in the United States and Canada, there probably were about 500,000 cases of appendicitis. This figure, of course, is an approximation, it is not literally true; it is not necessary that it should be literally true.

"3. During the same year and in the same area there were approximately 25,000 deaths from appendicitis.

"4. The death rate from appendicitis equals the combined death rate from ectopic pregnancy, pyosalpinx, gall-stones, pancreas, spleen and the thyroid gland. It nearly equals the mortality from gastric and duodenal ulcer, intestinal obstruction and gall-stones.

"5. From a study of the figures available at the Government Bureau of Statistics, it is clearly obvious that the death rate has increased from 11 per 100,000 of the population in 1920 to 14.4 per 100,000 of the population in 1925. This indicates a gradual rise of over 30 per cent."

It is also disturbing to know that the number of deaths from gall-stones per 100,000 has risen from 2.2 in 1900 to 3.9 in 1922, an increase of 60 per cent. "In the same period of time," Willis states,⁴ "the mortality rate from gastrointestinal ulcer increased 72 per cent while the mortality rate accompanying thyroid disease showed the stupendous increase of over 250 per cent."

More comforting is the information that the mortality rate has fallen in hernia and intestinal obstruction, surgical diseases of the kidney, and pelvic inflammation. In the same period the rate fell in hernia and intestinal obstruction 11 per cent; in surgical diseases of the kidney, 18 per cent; and in diseases due to involvement of the pelvic contents, over 26 per cent.

This rapid summary of surgical mortality certainly emphasizes the importance of the work of the American College of Surgeons in the standardization of the modern hospital and also indicates the need for standardization of the modes of surgical treatment. Furthermore, it indicates the need for the closest co-operation on the part of the general practitioner, the internist and the surgeon.

Since a perusal of vital statistics evinces the need of co-operation, what are the means by which united action can further advance the science and art of medicine?

First, there is the American Medical Association, that great body of 90,000 physicians, which J. Basil Hall, President of the British Medical Association, stated was the greatest association in the world. Who can estimate the number of lives spared or the amount of illness prevented or ameliorated by its elevation of medical education, its analysis of proper therapy and remedial agents, its exposure of quackery and nostrums, and its legitimate education of the public through that valuable journal, "Hygeia"?

Of its more recent efforts every member should be cognizant and give to it his loyal support. The periodic health examination program is making rapid strides in the East, but in the West it has just begun. Manifestly this great work must be carried out most effectually by physicians who are convinced of the need of it and not through the medium of a third party like the insurance companies, who are not licensed to practice medicine. As an initial effort in our own state, the splendid "Manual for Periodic Examinations", issued by the American Medical Association, has been presented to each member and during this session daily demonstrations of the Periodic Health Examination movement are held.

Another significant new activity is the establishment of the Section on Physio-Therapy. The great war demonstrated the value of such therapy, and it is gratifying to know that this field will soon be on a scientific basis and that it will be another means of putting quackery to rout.

An important resolution was passed at the last meeting of the House of Delegates which has long been needed, viz., "to make a survey of the physical condition and financial status of its members who are incapacitated for earning their support by the practice of their profession, with the objective of establishing, managing and sustaining a home or homes for their care and maintenance."

The second means of co-operation is the Colorado State Medical Society, of whose

past we are justly proud. Since the War Period, medicine has seemed intensely individualistic probably due partly to self-preservation and partly to adjustment to a modern civilization. At the last meeting, however, a new spirit of co-operation appeared, fostered by our beloved retiring President, in which he was successful in enlisting the aid of the greater portion of the constituent societies in the scientific program and the matchless historical exhibit. This year your Scientific Committee has worked arduously to carry on this spirit by securing on the program speakers from our government institutions and the State Medical School, as well as enlisting aid from the county societies for the preparation of the exhibits on the Progress of Medicine.

At this session for the first time we are meeting with the Colorado Hospital Association and the Catholic Hospital Association of America, with the feeling that our interests are mutual. On our program appears the name of one speaker from the Hospital Association, while on theirs are two speakers from our society besides that of our distinguished guest from Baltimore. Out of the joint deliberations of the two bodies it is hoped that such homely, yet vital, problems as the collection of hospital bills and the correction of the grossly inadequate allotment paid by the State Compensation Fund for cases of major injury will reach a solution.

This year for the first time the proceedings of the Wyoming State Medical Society are incorporated in our official journal, "Colorado Medicine", a most laudable step in co-operation.

This year a committee considers the question of a full-time secretary for the state society. Without detracting from the untiring efforts of our genial, efficient secretary, it would seem that a full-time secretary would add much to the efficiency of our organization as it has done in other states.

Several years ago one of our eminent members delivered a presidential address on "Medical Centers". That Denver should be such a center there can be no doubt, possessing as it does so many physicians of out-

standing talent; possessing also a Medical Library of superior merit, and now adding, through the County Society, clinics at the various hospitals. The dream of Denver as a medical center came one step nearer realization when our State Medical School was housed in its new home, bringing with it not only teachers of medicine but also investigators in original fields. Drawing students as it does from the entire Rocky Mountain region, it should also disseminate advanced scientific information to the physicians in this area as well. Semi-annual clinics in Denver should be fostered jointly by the school and by the society, utilizing the outstanding talent of both, as well as that from our neighboring states.

The third and most vital factor in co-operation is the County Society. The advance of medicine has been so fast and complex with its specialization, hospitalization and centralization to meet enlarged demands that it has been difficult for the general practitioner to keep pace. In a state like ours, 51 per cent of whose population is rural, the need for scientific, well-trained physicians still exists despite a transformed civilization. The general practitioner still holds the pulse of humanity and in virtue of that privilege has a great responsibility. That individualism has overshadowed co-operation in many sections is apparent from the fact that a number of county societies have not met in two years, while in a number of others interest has been lukewarm. Membership in the county societies confers many privileges. Secretary West states, "To its member the society gives entree to the State Association and the American Medical Association besides making him eligible for remunerative connections with corporations. The county society that exists 'on paper' alone conveys to its members privileges which they do not earn."

Factors producing this apathy are complex. The geographical factor is one as a number of the county societies embrace large areas with a sparsely settled population, but this is compensated in a great measure by the advent of good roads and motor transportation.

The sins of commercialism and mental "dry rot" against which Osler so eloquently pleaded are also factors in the problem. To the conscientious physician scientific medicine offers the only solace when he loses in the battle with disease or when another practitioner perverts medical fact to his own advantage.

The most important hindrance to co-operation is the spirit of Chauvinism now so apparent in medicine. This is defined as a narrow, illiberal spirit in matters national, provincial, collegiate or personal. This spirit has done much to discount our work in the eyes of the public. Dr. William Osler, that great teacher-philosopher, said in an address before the Canadian Medical Association, "With our history, traditions, achievements and hopes, there is little room for Chauvinism in medicine. The open mind, the free spirit of science, the ready acceptance of the best from any and every source, the attitude of rational receptiveness rather than antagonism to new ideas, the liberal and friendly relationship between different nations and different sections of the same nation, the brotherly feeling which should characterize members of the oldest, most beneficent and universal guild that the race has evolved in its upward progress—these should neutralize the tendencies upon which I have so lightly touched."

Stimulation of the county societies to activity should be a serious concern for the State Society. The election of a full-time secretary should help. Teams from the stronger societies could be selected to put on programs in the weaker societies, while district societies organized for scientific advancement only, like the Arkansas Valley Medical Association, would add materially to co-operation.

In conclusion, since the need of co-operation is manifest from a study of vital statistics, and since it is a highly important factor in the further advancement of medicine, should we not as members of the guild adopt the "Ritual" in medicine which Sir Berkeley Moynihan⁵ so beautifully applied to surgery? "Surgery", he says, "is nowadays no longer the work of an individual,

but of a "team" in which every member plays his part, in which all contribute to success, and in which each may bring about disaster. In every phase of its work there should be not merely the casual observance of a ritual the meaning of which is lost and the deeds of which are only a faded counterfeit, but acts of full devotion to principles which have been tried and proved, acts which are the witnesses to a living and perfect faith."

If the need of co-operation in medicine seems irksome in modern practice, we can recall David Starr Jordan's "Philosophy of Hope":

"Today is your day and mine, the only day we have, the day in which we play our part. What our part might signify in the great whole, we may not understand, but

we are here to play it, and now is our time. This we know, it is a part of action, not of whining. It is a part of love, not cynicism. It is for us to express love in terms of human helpfulness. This we know, for we have learned from sad experience that any other course of life leads toward weakness and misery."

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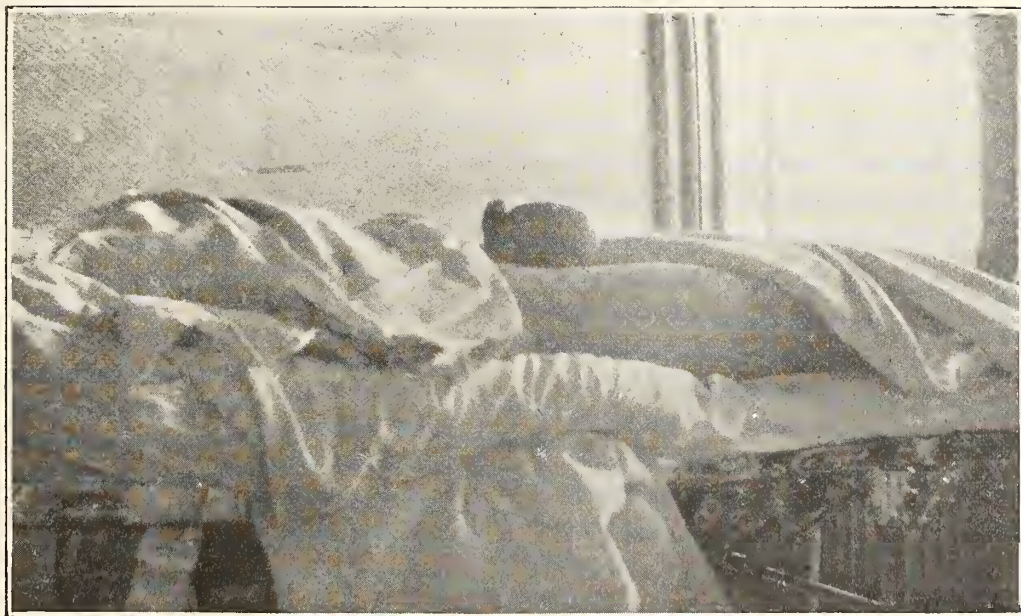
²Individualism in Medicine.—Lloyd Paul Stryker. Quoted by The American Medical Association Bulletin, Vol. 21, No. 5.

³A Study of the Mortality in Appendicitis.—Le Grand Guerry. Annals of Surgery, August, 1926, Page 283.

⁴The Mortality in Important Surgical Diseases, Especially Appendicitis.—A. Murat Willis. Surgery, Gynecology and Obstetrics, March, 1926, Page 318.

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INCARCERATED INGUINAL HERNIA WITH A SUPERIMPOSED GANGRENOUS APPENDIX RESULTING IN INTESTINAL OBSTRUCTION



Age 15: high school student.

Past history of no importance except for presence of irreducible hernia since the age of eleven.

Present illness—On day previous to admission to hospital began having colicky pain over the testicles with distinct tendency to radiate to penis and urgent desire to urinate. Salts were freely given by mother without results. Definite chills, fever and vomiting persisted.

On admission to hospital pain had ceased. Operation revealed a gangrenous appendix, the cecum and ileum incarcerated and strangulated at the ring.

H. J. SIMS.

All the hive bees in the United States have been imported from other countries.

The rapid decrease and depletion of the sturgeon fisheries of North America during the last forty-five years can fairly be compared to the disappearance of the buffalo from the western plains.

Almost two-thirds of all known kinds of animals can either fly or glide through the air.

Romans used glass for windows in their houses in the first century.

TULAREMIA*CHESTER E. HARRIS, M.D.
BASIN, WYOMING

Although the history of tularemia does not extend far back into the past, like that of tuberculosis or the plague, it is not without interest. We have no knowledge of the existence of the disease prior to about twenty years ago, so that it is one of the very few medical entities which have been established in the last fifteen years. Until quite recently, it was thought to be peculiarly American; but within the past year Francis¹ has determined that Ohara's Disease, an infection present for twenty years among those who have skinned and dressed rabbits in a certain area in Japan, is identical with tularemia. It can be said, however, that the discovery and elucidation of this disease have been accomplished entirely by American investigators; for the organisms isolated by Ohara² probably were not the specific germs of the disease.

The earliest written account of tularemia is given in a letter by Dr. Ancil Martin³, of Phoenix, Arizona, to Dr. Fredrick Novy, written on September 19, 1907. Herein are noted several cases of a peculiar infection occurring in persons who had skinned and dressed jackrabbits, and who suffered, three with conjunctivitis, and the others with an infection of the hand or of the foot. All showed an accompanying adenitis. In the light of our present knowledge, this was undoubtedly tularemia, so that the disease is known to have existed in the United States almost twenty years. Since 1908, an illness known locally as "deer-fly fever" has been prevalent in Utah, the name for the unknown disease being derived from the fact that there was always a clear history of a fly bite initiating the sickness. It was from this region that Dr. R. A. Pearse⁴, of Brigham, Utah, collected six cases, upon which he made the first known clinical report on this condition, before the Utah Medical Association in 1910.

So we have a history of the disease orig-

inating in two different manners, while its cause, i. e. the specific organism, was as yet unknown.

In 1911, McCoy⁵, of the Public Health Service, took up the task of determining the etiology of an epizootic among the ground squirrels in Tulare County, California; for it was feared that they might be infected with plague. The first remarkable fact discovered was that the infecting organism, unlike *B. pestis*, did not reproduce on ordinary culture media. It was found that only on Dorset's coagulated egg-yolk medium would the germs develop. The micro-organism was isolated and named *Bacterium tularense*, after the County of Tulare. The next year, McCoy and Chapin⁶ reported the first agglutination reaction of human serum on *Bacterium tularense* in the blood of Chapin, and of one of the laboratory assistants. It has since been determined that Chapin, prior to this, had been on sick leave for four weeks, suffering from some unknown malady. The conclusion is that he must have acquired the disease through handling material from animals sick with tularemia, just as a number of observers have been infected since then.

The first case of which we know in Wyoming, was a patient of ours who entered the hospital on July 6, 1912, with a diagnosis of typhoid fever. Neither the Widal nor the leucocytosis corroborated this diagnosis, although we associated the latter with the presence of two ulcers on the right ear, and a marked cervical adenitis. The patient said these small ulcers were due to insect bites. From our experience with numerous subsequent cases, we later recognized this as a glandular type of tularemia. In the next few years, a great many cases occurred in the Big Horn Basin, and were seen by Dr. E. W. Croft, of Cowley, by Dr. T. B. Torjusen, of Lovell, and by us at Basin.

In 1913, 1914, and 1916, Dr. Vail⁷, Dr. Sattler,⁸ and Dr. Lamb,⁹ of Cincinnati, Ohio, each saw a case of tularemic conjunctivitis.

*Read before the meeting of the Wyoming State Medical Society, Lander, Wyoming, July 12-13, 1926.

Wherry and Lamb¹⁰ isolated *Bacterium tularensis* in each of these cases and, in connection with the one seen by Dr. Sattler, they found rabbits dead of tularemia within a few miles of the patient's home.

It was not until 1919 that the organism identified by McCoy as the cause of the ground squirrel plague in California was found to be the etiologic factor in the human disease resulting from fly bite in Utah. Francis¹¹ isolated *Bacterium tularensis* from the human cases and from jackrabbits found dead in that vicinity, and showed that the disease was carried from the rodent to man by the bite of the deer-fly, *Chrysops discalis*. The following year he and Mayne¹² demonstrated the transmission of the infection in laboratory animals by the deer-fly. This work practically completed the determination of the cause and spread of the disease, ten years after the isolation of the organisms, and fourteen years after the first known cases.

Synonyms. At first the designations of the unknown disease were mainly descriptive of the origin, so that it was known as "Deer-fly fever" in Utah, as "Fly-bite fever" in our region, as "Rabbit fever" among the butchers in Washington, D. C., and as "Glandular type of tick fever" in the sections where the spotted fever occurred. In Japan it has been known as "Ohara's Disease." It was Francis who gave the scientific name, *Tularemia*, signifying a bacteremia due to *Bacterium tularensis*.

Definition. In 1920 it was known that tularemia existed in nature as a destructive bacteremia of ground squirrels and of rabbits, due to *Bacterium tularensis*; that it was transmissible to man through the bite of the deer-fly, or through soiling of the hands with the blood or the internal organs of an infected animal. Since that time, it has been shown that the tick, *Dermacentor andersoni* Stiles, frequently carries the infection.¹³

Etiology. The Specific Organism. *Bacterium tularensis* is a very small, non-motile, encapsulated, Gram-negative microbe occurring either in a coccoid form, one-half micron in diameter, or in a rod-like shape 0.7 by 1.5

microns. It stains poorly with methylene blue, but very readily with anilin-water gentian violet, carbol thionin, and carbol fuchsin. It does not grow on ordinary culture media, but produces a good growth on Dorset's egg-yolk medium. Several excellent media, each containing cystin, have been worked out by Francis.¹⁴ This peculiarity suggests a reason for its ready transmission through the skin, which is rich in this product. The organism is not known to exist outside of infected animals or man, or the insect carriers. It has been found in the ground squirrel, the coyote, the jackrabbit, the cottontail, and the snowshoe rabbit, but never in any of the domesticated breeds of rabbits.¹⁵ It is not very tenacious of life, being easily killed by a temperature of 56 to 58 Centigrade, in ten minutes, so that the cooked meat is perfectly safe as a food.

Transmission of Infection. Perhaps the commonest method of infection of man is through the bite of the deer-fly. Unlike the rabbit-tick, the rabbit louse,¹⁶ the wood tick, germs for long periods of time and thus perpetuate the disease among rodents, the petuate the disease amongst rodents, the deer-fly is only a transient carrier and must transmit his contagion within a very short time after receiving it from an infected rabbit. The deer-fly is the most active of the insect carriers and it is an easy matter for it to bite man within a few minutes after becoming contaminated with the blood of a rabbit dying of tularemic bacteremia. The squirrel flea and the rabbit louse do not bite man, so that we have no case of infection through these insects, even though the disease has existed among ground squirrels in California for fifteen years. In fact no reports of tularemia have been made from this state, except of that contracted in the laboratory. Undoubtedly, quite a number of cases resulting from the bite of the common wood tick, *Dermacentor andersoni* Stiles, have been tularemia, although they have been considered as the "glandular type of tick fever." In 1923, Dr. H. E. Lamb, of Idaho, reported a number of infections so designated. It was not until 1924 that the

tick was definitely recognized as an infection carrier. Pfunder¹⁷ reports a case in October, 1925, in which there is a direct history of contamination of the eye by the fingers of the patient, who had just crushed ticks found upon his horses.

Tularemia is capable of transmission through the unbroken skin, brought in contact with infected rabbit blood or viscera. This has been heroically demonstrated by the wife of Dr. Ohara, who submitted herself to the experiment in January, 1925.¹ The blood and tissue juices of a wild rabbit found dead in an infected region, were rubbed lightly on the back of her hand, and washed off twenty minutes later. She developed a typical glandular tularemia.

Practically every laboratory worker, who has been actively connected with the investigation of tularemia, has developed the disease.^{18,19} Presumably the entrance of the germs was through the unbroken skin, for there were no local ulcerations nor glandular enlargement; but the possibility of drop-let inhalation or the transfer of infectious material from the hands to the mouth must be considered.

Wounds on the hands of persons dressing infected rabbits have led to the development of the disease, with local lesions and regional adenitis. Among these have been a number of butchers who have prepared rabbits shipped in from distant points.

Tularemia conjunctivitis probably arises from direct contact with contaminated fingers, as in Pfunder's case.

Seasonal Occurrence. The season of the cases due to ticks and deer-flies, is that of these carriers. Ticks are most active from March to July; *Chrysops discalis* are prevalent in June, July, and August. In the eastern states the majority of the infections occur at the time cottontails are in open season, and are being used as food—November, December, and January.²⁰ Jackrabbits are a great pest throughout the West, but are rarely used as human food, although they are frequently killed and used as food for poultry, hogs, and dogs. Infections consequent upon contamination from handling

them are most frequent in the spring, summer and early fall months. Naturally, there is no seasonal incidence among laboratory workers.

Infection and Immunity. The morbidity among the laboratory investigators indicates that perhaps all human individuals are susceptible to the infection—that there is no natural immunity. The blood of one laboratory man showed agglutinating properties for *Bacterium tularense* without any record of his having suffered with the disease.⁶ Among susceptible laboratory animals there has been no individual immunity discovered.

No second attack is known, except that occurring in an investigator who had a primary typhoid type, and several years later developed an ulcer on his finger, from which the germs were isolated, and who had glandular enlargement but no systemic reaction.¹⁸ In connection with the persistence of the agglutinins for a number of years,²¹ this leads one to believe that a lasting immunity is attained.

Symptoms and Course. Two varieties of tularemia infection are recognized, the glandular and the typhoid.

1. **The Glandular Type.** This type is by far the more common and is evidenced by an ulcerated site of infection with an enlargement of the glands along the line of the lymphatic drainage. The incubation period is very short, sometimes but a few hours elapsing after the bite, before the sudden onset occurs. Fever, chills, nausea, and general malaise immediately incapacitate the patient. He feels that he is coming down with a severe illness. Within twenty-four to seventy-two hours from the time of infection, and in spite of other symptoms, the bite and the enlarging lymph glands attract his attention. When these points are adjacent, as in bites upon the face, the pain and tenderness extend over the entire area; but when the infection is upon the hand and the epitrochlear or axillary glands are enlarged, they are more painful than the area of the bite. The fever runs an irregular course, varying from 100 to 103½ degrees. The bite is at first a slight, reddened elevation which becomes

pustular, often covered by blackened cuticle, upon the removal of which a small punched-out ulcer, filled with viscid, grayish pus, is found. This ulcer is usually not over 1 cm. in diameter and of about the same depth. It rarely shows any tendency to extend, but neither does it have any disposition to heal, even with this open drainage. The lymph glands and the surrounding tissue are very much swollen and extremely tender. Within a few days the swelling becomes more definitely located in the glands, which are quite firm and enlarged. In a majority of the cases, glandular suppuration occurs and requires evacuation. The general condition of the patient is that attending any septic fever, but the prostration is more prolonged and recovery sometimes delayed over a period of several months.

An important form of the glandular type is the tularemic conjunctivitis, resulting from contamination of the eye. It is very painful and prolonged, and the ulceration of the conjunctiva is attended by a marked pre-auricular, submaxillary or cervical lymphadenitis.²²⁻²³

2. Typhoid Type. In the typhoid type the general condition is similar to that found in the glandular type, but there is no point of infection, and no enlarged glands are usually demonstrable. Two English workers showed some swelling of the cervical glands. This variety of infection has been found mainly in laboratory workers and is thought to be due to the entrance of the germs through the unbroken skin. It was the occurrence of this form of the disease in the Lister Institute in London, that convinced the laboratory personnel that tularemia was too dangerous a disease to be worked with; and they abandoned its further study for fear of establishing the contagion in England.

Diagnosis. In communities where *Chrysops discalis* are common, and where there are periods of rabbit plague—said by the natives to occur once in seven years—the diagnosis of a case presenting sudden onset with fever, a papule, the history of a bite, and glandular enlargement, should not be

difficult. The general course of the disease is highly characteristic. Patients who are bitten by ticks and who develop an ulcer, fever and swollen glands, but no eruption, probably are suffering from tularemia. In the typhoid type of the disease, the history of contact with an infected animal and the absence of a Widal make the diagnosis probable. This disease should be expected in laboratory workers or in persons who have dressed rabbits.

Laboratory Tests. The agglutination reaction, which appears in the second week, should, in the absence of a history of former infection, be conclusive. In that respect it possesses the same advantage and possible weakness as the Widal; but an agglutination of increasing titre as the disease progresses up to the fourth week, is absolutely diagnostic. It has been found positive in the dilution of 1:2560. Specimens of blood serum obtained from suspected cases, when mixed with an equal quantity of pure neutral glycerin, may be sent to the Hygienic Laboratory at Washington, for diagnosis.

Blood culture from tularemic patients may prove positive, but is not to be depended upon. No pronounced blood changes take place, although a moderate leucocytosis is not uncommon.

Inoculation of guinea-pigs with the pus from the infected wound or the opened glands gives very definite results. The animal should die within a few days and his liver and spleen should show multiple grayish white necrotic areas. Material obtained from this spleen and liver, when rubbed into the unbroken, shaven skin of a second guinea-pig, should produce death within a week, with the same pathologic findings.

Differential Diagnosis. Errors in diagnosis are nearly always due to failure to think of tularemia as a possible cause of the illness. The increasing number of case reports testifies to this.²⁶⁻²⁷⁻²⁸ The typhoid type can be differentiated from typhoid fever by the history, the severity of onset, the absence of a positive Widal and by laboratory tests. The initial lesion of sporotrichosis²⁹ which somewhat resembles the ulcer of tul-

aremia is rarely accompanied by constitutional symptoms comparable to those of tularemia.

Prognosis. A period of disability lasting for several weeks or months may be anticipated at the beginning of any attack of tularemia, even though no complications ordinarily arise.

Bacterium tularense which is so rapidly and inevitably fatal to most rodents, and which possesses such a marked pathogenicity for man, has caused but few human deaths. In one of these, the case of Dr. J. R. Verbrycke,²¹ the infection seems to have followed the course commonly taken in rodents, for the autopsy showed necrotic areas in the liver and in the spleen. Another death occurred from a pneumonia complicating a glandular type, resulting from a fly bite at the base of the neck. It may have been the consequence of the extension of the infection to the deep lymphatics. A patient with a chronic heart lesion, died in the fourth week of his tularemia. In a series of four cases of tularemic conjunctivitis,²³ all fulminant, the three which involved both eyes, died within a few days.

Treatment. Prophylactic. Measures taken toward the extermination of jackrabbits and cottontails in a definitely infected district are worthy of consideration; but with transmission of the contagion from one generation of ticks to the next, through the eggs, and with the rabbit louse carrying the infection from one season to another, we cannot expect to be effective in exterminating the disease, even locally.

Medical. There is no specific for tularemia, in spite of the occasional good reports following the injection of salvarsan¹ or quinine.²⁵ This is to be expected in view of the nature of the organism causing the disease. The treatment, then, is purely symptomatic. No vaccine or serum has been developed which is preventive or curative.

Surgical treatment consists in drainage of glands which have reached the stage of fluctuation. Extirpation of enlarged glands would be a serious undertaking, especially

in infections about the head. Furthermore, it does not seem plausible, unless the site of infection is also excised, since the invasion of the general circulation is probably prevented by glandular intervention.

Personal Experiences.* Our first case was that of the patient mentioned above who came to the hospital in July, 1912, after an illness of about a week. Aside from the fact that he had some sort of an infection which slightly resembled typhoid fever, we gave him no special consideration. The glandular enlargements were thought to be due to poisonous insect bites—we believed they were from buffalo gnats. The glands were opened and the patient left the hospital in fifteen days.

In the next year or two, we saw a number of cases and recognized the disease as of fly-bite origin. We have no definite record of how many of these infections we saw in 1913 and 1914, for we had not yet realized that this was a distinct disease. In 1915, we find record of nine cases, in 1916, twenty-three, 1917, very few; and since then three or four each year. Dr. Croft and Dr. Torjusen, in the Cowley-Lovell district, saw very many cases in 1915 and 1916.

We speculated as to the specific cause of the disease and one of our patients, in 1915, advanced the theory that the flies were poisoned from the rabbits which were dying in great numbers. Despite the fact that McCoy found dogs and cats insusceptible, we have seen three cases of infection in cats which strongly resembled human tularemia, in that they occurred in the summer months when tularemia was prevalent, that there was a point of infection, with enlarged glands terminating in suppuration and that the animals were extremely sick and recovered only after many weeks.

Attempts to find any organisms in the pus from the fly-bite ulcers in our early patients was entirely negative, partly due, no doubt, to the difficulty with which *Bacterium tularense* stains with methylene blue, which we used; but also because it is very seldom that the germs are found in pus smear preparations. We tried cultures in bouillon, on agar, and on blood serum, but got no growths. We

*From cases seen by Drs. H. T. Harris and C. E. Harris, Basin, Wyoming.

did not make any animal injections, thereby missing a great thrill, for this is the most striking manner in which the disease can be demonstrated.

All of our cases have been of the glandular type, and except for three mentioned below, have originated from fly bites.

Case I. On July 26, 1926, William S., aged seventeen years, was bitten by a fly, just below the lobe of the right ear. His mother did the dressings of the ulcer which developed. When I visited him on August 8, his mother was severely ill with pain in the hand and the arm. She said she had pricked her thumb while dressing the wound the previous evening. She was taken to the hospital with severe headache, vomiting, and a temperature reaching 102.6 degrees, and the thumb was opened at the point of maximum pain. There is no record of finding any pus, but packing was still being done when she left the hospital, August 30. An epitrochlear gland was opened August 23, and purulent discharge evacuated. We believe this to have been a case of tularemia.

Case II. On November 24, 1925, one of us was called to see Mrs. M. who seemed to be suffering with an acute attack of what she called "flu," with fever, general body pains, and headache. She was given an analgesic and antipyretic and after several days in bed was able to be up and around, although she felt very sick. On November 30, an incision was made in her finger and a small amount of thick pus evacuated. She dressed her own finger which was very sore, and "thought it would never heal." About January 1, when we were attending another member of the family, she mentioned an axillary swelling which she had "had for a long time." As she had had "boils" the year before, she thought this to be a boil, but it seemed never to be going to "come to a head." It was only then that we thought of tularemia, and found by questioning her that she had dressed a rabbit the night before her illness began, and had scratched her finger on a bone at the site of the later infection. We opened the gland and found characteristic tularemic pus therein.

Case III. At the present time we have a patient who was bitten on the ankle by a tick. The great prostration, continued fever, the enlarged, painful, inguinal glands and the absence of eruption, are suggestive of tularemia. Blood serum will be sent in for a serologic test.

None of our cases has been checked by the agglutinin reaction, all of them except the above three having been so definite in history and course that a diagnosis was easy. We hope soon to send in blood from many of these old cases for serologic test. This will be interesting in showing the duration of the presence of agglutinin. Although the number of infections is not now so numerous as it was ten years ago, they still continue, and the deer-flies are still an annoyance to the farmer. The fact that we have had no second infection in any of our cases, speaks in favor of the development of a marked immunity.

Before the nature of the disease was learned, we attempted, as many other doctors did, to find some remedy for the illness. We hoped that the infecting pathogen might be something that salvarsan or quinine would kill—mercuochrome had not then come into use—and we tried them. The variations in temperature and in duration, at times led us to believe that we favorably influenced the malady. We have given up such thoughts now, and are treating the victims symptomatically. Phenacetin and aspirin, pyramidon or mygrone reduce fever and lessen aching; hot, wet dressings partially relieve pain in the glands. A tonic is helpful during convalescence.

We have never tried extirpation of the glands and the fly-bite ulcer. With a general systemic reaction, we doubted whether all the contagion was arrested by the local lymph glands; it usually went past the first set and caused enlargement of the second. Our practice is to wait for a distant fluctuation before incising, believing that earlier opening can only interfere with the function of the glands, or even extend the infection. No pus is found early and the gland later begins to break down and discharges for a considerable time. All of our cases, except three, developed suppuration in the glands. In those under observation throughout the disease, fluctuation was present in from fifteen to thirty days, usually in about twenty-five days. One case, L. C. W., did not return to have the swelling opened and was unlike some cases mentioned in the literature that go to softening of the skin and spontaneous opening. Fifteen months later we found a large, soft swelling which on incision proved to be simply a sac filled with almost colorless, thin fluid.

In the way of prophylaxis, we try to warn our community that, while not every deer-fly is infected, any one of them may be; that carelessness in prevention of tick bites may lead to tularemia, as well as to tick fever; that the rabbit easiest hunted is not always the best meat, for he may be sick and capable of carrying the infection merely through skinning him.

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LITHOPEDITION*

S. D. VAN METER, M.D.

When the final chapter is written regarding the role which calcium plays physiologically and pathologically, in the human body, the medical profession will be far wiser than it is today. The whys and wherefores of calcification of pathological foci are little understood, although the condition was recognized by physicians of ancient times. It is of special interest in instances of ectopic gestation when the fetus is transformed into a lithopedion. The two necessarily associated subjects have been of medical and surgical in-

terest from remote ages, as is shown by the earliest literature on obstetrics.

Albucasis (1) in the eleventh century discussed ectopic gestation. Cordeaus records a case in the sixteenth century which was converted into lithopedion and carried in the abdomen twenty-eight years. In the gynecological work of Isreal Spach, published in 1557 (2), is to be found the illustration of a lithopedion drawn in situ with the belly of the mother laid open. He regarded the lithopedion as a reversion. Alluding to the classical myth that Deucalion and Pyrrha, the two survivors of the Deluge, repopulated the

*Read before the Denver County Medical Society, May, 1926.



world while walking over the earth by casting stones behind them, which on striking the ground became people, Spach dedicated a curious epigram to this calcified fetus.

The epigram read as follows:

"Deucalion cast stones behind him and thus fashioned our tender race from hard marble. How comes it, that nowadays by the reversal of things, the tender body of a little babe has limbs nearer akin to stone?"—

In reviewing the literature on lithopedion one is forcibly impressed with the fact that notwithstanding the tragic picture of ruptured ectopic gestation and its frequent fatal ending when left unoperated, Nature has wonderful power to save the mother's life without surgical intervention.

It is astonishing to find the number of cases on record where calcification with formation of lithopedion has taken place. These calcified fetuses have been carried for years in the abdomen of the mother, often with little or no inconvenience. The longest period of time a lithopedion has been retained in the abdomen that I can find recorded is reported by Kuchenmeister. (3). In this case the fetus remained in the abdominal cavity fifty-seven years.

The next is that of a woman (4) who at the age of forty-six years had labor pains without the expulsion of the fetus. Impregnation followed twice afterwards, each culminating in the birth of a living child. The woman lived to be ninety-four. Convinced that the fetus of the conception at forty-six was still in her abdomen, she directed in her will that a post-mortem be made. This was done and a lithopedion found forty-eight years after the tubal abortion. That a woman at forty-six should have a tubal abortion and subsequently given birth to two living children throws suspicion upon the accuracy of the whole report. However the many well authenticated freaks of all stages of the puerperium tend to make one give credence to most anything relative to abnormal pregnancies.

The history of the case I wish to report is as follows:

Mrs. A. B.—age forty-seven. Family history negative. Married at the age of seventeen and at eighteen was supposed to be pregnant at full term. After violent abdominal pain lasting all night she expelled blood and membranes, but no child. The attending physician confessed he

could not understand the case. After two weeks, during which time she suffered much soreness of the abdomen, she resumed her household duties. Was in poor health for several months. Two years later she gave birth to a living child at full term, and five years later a second child was born. There was nothing out of the ordinary in either of these pregnancies, except that both children died before three months of age.

Nothing in her physical condition caused her to consult a physician until February, 1926. She menstruated regularly and normally until four years ago, when she flowed excessively for one month. This was not accompanied with pain or fever. She first noticed tenderness and some pain in right lower quadrant in June, 1925, but continued to menstruate regularly. Last menstruation was January 28th. (1926)

Pain and tenderness with some fever caused her to consult a physician early in February. Diagnosis of pelvic tumor was made and section advised. Physical examination on February 12th, (1926) show a mass occupying the entire right lower quadrant. The uterus was fixed in the mass and the cervix hard and retracted. There was a serosanguinolent discharge. Temperature 100. W. B. C. 12,600. Hmgl. 70. Urine negative. Wassermann (blood) negative. A tentative diagnosis of carcinoma was made. A piece of cervical tissue was removed for histological examination. Laboratory report—"Negative, but suspicious of carcinoma." Patient's general condition was so unfavorable even exploratory incision was hardly felt justifiable.

This was done, however, February 16th, (1926) and on opening the abdomen through a low mid-line incision the mass was found to be a right-sided tubo-ovarian abscess with a loop of the ileum and the appendix adherent posteriorly, and omentum anteriorly. A hydrosalpinx on the left side adherent to the sigmoid completed the pelvic pathological picture.

After detaching the omentum from the fundus of the uterus, and the mass on the right side, and liberating the loop of the ileum adherent in the cul-de-sac, the intestines were pushed upward and held in place by the usual gauze retention pack. During this process a small ivory white object was noticed emerging from between the loops of the ileum. On inspection it was found to be a lithopedion, apparently of a two and one-half to three months fetus. It was attached to the left border of the omentum, but otherwise wholly free. The attached band of omentum was ligated and the lithopedion removed. A subtotal hysterectomy and appendectomy, with cul-de-sac drainage completed the operation.

The patient stood the surgical procedure well and made a good recovery, but the cervical incision made in removing tissue for diagnostic purposes before the operation refuses to heal and in macroscopical appearance strongly supports the pre-operative diagnosis of carcinoma. At the time of the operation there was no macroscopical evidence that the tissues removed were malignant. The rule requiring that all tissues removed at operation be sent to the laboratory unfortunately was not observed in this instance, and the specimen went to the furnace instead.

Tissue from the still malignant looking cervix was removed April 12th, and examined. The report this time was—"Round-celled sarcoma, probably originating in the body of the uterus." Had malignancy been found in the first specimen, in all probability the case would not have been op-

erated; or if so, pan-hysterectomy would have been the proper procedure, and would have been performed. As it is, radiation by radium and x-ray is the only treatment that promises prolongation of life and relief from hemorrhage. Progressive malignancy is the most logical prognosis, with the usual sad final result common to those afflicted with sarcoma.

The inclosed cut shows the amount of calcification and ossification. It is evident from the last one that diagnosis of lithopedion could have been made pre-operative had an x-ray been taken. The easily recognized male pelvis is proof positive that the x-ray was taken post-operative.

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SURGICAL RAILROADING*

HORACE G. WETHERILL, M.D.
MONTEREY, CALIFORNIA

"To railroad" is to expedite with unseemly haste. "Surgical railroading" may be illustrated by citing an occurrence in which a gentleman, believing himself to be sound, applied for life insurance and during the examination was told that he had a small inguinal hernia. In order to check this statement he went to a competent surgeon of large experience who could find no hernia but did find a patulous ring which gave a slight impulse on coughing. He was advised by an acquaintance to consult another surgeon, one who does a large amount of work on a *Quid pro quo* (%) basis, who is, nevertheless, well informed and a good operator. This man so impressed the patient with the danger of delay and the urgency and necessity for immediate operation that he was sent to the hospital at once and was operated upon, **as an emergency**, late the same night.

If this were an isolated instance it might be believed that, notwithstanding the circumstances, an emergency truly existed in this instance, but when such practices are known to be habitual with any surgeon he may, without impropriety, be regarded as a "surgical railroader" and stand so classified before his fellows and the world at large.

With the premises as stated it is interesting to speculate upon the objects and incentives which may prompt one to such action; action that any ordinary ethical surgeon

who is actuated by the common law of strict integrity and honesty of purpose would regard as wholly unjustifiable from any standpoint, and it will be worth while to consider whether in any case it is, after all, worth while to prostitute one's self for immediate gain and glory when in the course of human events the time is sure to come when one who does such things will regret it bitterly and find the reputation for having at one time been "a railroader and fee splitter" a bar to that "place in the sun" which his ability and surgical skill, other things being equal, would have entitled him to occupy.

Of course much may be forgiven a youngster who is ambitious to become established in the hospital and among his fellows as "a surgeon" or, sordid as it seems, who may feel that he can take no chances on having the incidental fee escape, as might happen if the patient is given time to think things over or get another opinion. No such considerations, however, can excuse the established and successful surgeon who practices such skulduggery either for gain or to gratify his mania for operating or his vanity in the volume of surgery he is doing, and one or all of these ulterior motives must actuate any man who finds his moral fibre so deficient that he can allow himself to take such liberties with the ethical principles of common honesty and those set forth in the golden rule.

Fortunately very few surgeons have the inclination or possess the talents necessary to qualify them for "railroaders" or they

*Read at the first annual meeting of The Pacific Coast Surgical Association, Del Monte, Calif., February 26, 1926.

have been reared in an environment and educated in an atmosphere where the ideals and altruistic tenets of an honorable profession would preclude the thought of such a procedure.

"Surgical railroading" suggests a Union Depot with many terminals and ample switching facilities and other combinations of coordinated effort for the systematic exploitation of patients in "groups" and the consequent performance of much unnecessary surgery. It is, unfortunately, sometimes true that the exigencies and necessities of a group of practitioners or the need to keep up certain hospital appearances or expenses require that the personal interests of a patient may have to be regarded as secondary to the interests of the group, and it is remarkable how, at times, the fixed attention and firm conviction on the part of a dominant member of some groups may through a process of "suggestion" or hypnotic influence lead other members of the group to a confirmation of his opinion and condonation of his questionable doings. This is merely a natural tribute to his superior powers of reasoning based upon his larger knowledge of what may be called pathological practice.

It may be true, upon the other hand, "that great material prosperity has weakened the influence of ideals, and blurred the eternal difference between means and end" (W. O.), but the very fact that such practices bring down upon those who are guilty of them the contempt and scorn of the profession at large is evidence of the true spirit of integrity with which the great body of physicians is actuated.

That greatest and best physician of his time, Sir William Osler, said in an address before a lay audience in Montreal in 1895, "'Tis no idle challenge which we physicians throw out to the world when we claim that our mission is of the highest and noblest kind.'" * * * "Not that we will live up to the highest ideals, far from it—we are only

¹Gehazi's punishment.

The leprosy, therefore, of Naaman shall cleave unto thee, and unto thy seed forever. (II Kings, V. 27.)

and they are realizable, which means more. But we have ideals, which mean much. Of course, there are Gehazis among us who serve for shekels,¹ whose ears hear only the lowing of the oxen and the jingling of the guineas, but these are exceptions; the rank and file labor earnestly for your good, and self-sacrificing devotion to your interests animates our best work." (Teaching and Thinking—the Two Functions of a Medical School.)

The Romance of Surgery

An event which marks the early endeavors of the surgeon to relieve abdominal distress and which has a strong flavor of the romantic is McDowell's first operation for the removal of an ovarian tumor. Picture to yourselves, if you can, a county doctor in the year 1809 traveling sixty miles on horseback on a winter's day to see a patient whose strength was being sapped by the ravages of a pelvic tumor. The results of this visit are memorable alike for their far-reaching effect, as for the audacity of a surgeon and the courage of a woman. We next see this woman, on a bleak day in December, 1809, "with her pendulous abdomen resting on the pommel of her saddle" riding those same sixty miles, a two or three days' journey, into Danville, Kentucky, there to submit to the momentous experiment that was to supply the foundation for modern abdominal surgery. The central figures in these two pictures are Ephraim McDowell, the fearless surgeon, and Jane Todd Crawford, the heroic woman. Their story is indeed worthy of the pen of the novelist.

The description of the operation as it has come down to us from the pen of McDowell himself is not without interest both for its extreme simplicity and the apparent unconsciousness of the surgeon of the import of the procedure.—John N. Deaver, M.D. The Journal of the Iowa State Medical Society.

Vitamines

Two outbreaks of a scurvy-like disease among cattle have been reported, one from England and one from Australia, apparently caused by faulty nutrition. Since this disease had all of the symptoms of scurvy, which is due to a lack of vitamin C in the diet, the Minnesota scientists were led to make experiments to determine the role of this vitamin in the nutrition of cattle.

Two calves were fed on a diet extremely deficient in vitamin C for a period of 350 days. With the exception of this vitamin deficiency the diet was well balanced and varied. The animals grew normally in every respect and showed no symptoms of scurvy. Guinea pigs on the same ration die of scurvy in thirty days.—Science Service.

Sleeping Sickness

Sleeping sickness is prevalent in the Cameroon district of West Africa. Reports received by the Society of Tropical and Medical Hygiene state that it is particularly bad in the region of the Nyong River. Over a third of the population, as nearly as can be estimated, have been afflicted, with an ensuing mortality of over 10 per cent.—Science Service.

SYSTOLE

Behind every mountain lies a vale.—Dutch.

No thoroughly occupied man was ever miserable.—Byron.

Nay contains the same number of letters as yea.—Don Quixote.

The owl is not accounted the wiser for living retiredly.—Danish.

The miser doth spoil his coat by scanting a little cloth.—Shakespeare.

He prepares evil for himself who plots mischief for others.—Latin.

Good nature is the most god-like commendation of a good man.—Dryden.

He who is the cause of his own misfortune may bewail it himself.—Italian.

The most lasting monuments are doubtless paper monuments.—Rabelais, Butler.

A man who is proud of his money has rarely anything else to be proud of.—Roumanian.

One's own thistle field is dearer to him than his neighbor's garden of roses.—German.

When a man has fallen into the mire the more he flounders the more he fouls himself.—Italian.

Moderation in success is no less expected from brave men than gallantry in action.—Cleobulus.

In the wreck of noble lives,
Something immortal still survives.
—Longfellow.

He that can see his own eyes without a glass can perform miracles. Literally: Shall be able to move the bull's horns (the earth resting on the horns of a bull).—Arabian.

DIASTOLE

"My, what a nose!"

"Oh, it's a pretty good nose—as noses run."—Dartmouth Jack O'Lantern.

Does Everything Else

"What make is that 'cut-down' junk of a car of yours?"

"Oh, just an old 'Hen'."

"Chevrolet?"

"No."—West Point Pointer.

Arrives

House flies have no politics,

A house fly has no fame,

He has no business in the soup

But he gets there just the same.

—Kablegram.

Just the Fit

"Pa," said little Peter, "what becomes of a ball-player when his eyesight begins to fail?"

"They make an umpire out of him," growled his dad.—Exchange.

Charleston

"Did you ever see 'Oliver Twist,' Aunty?"

"Hush, child. You know I never attend modern dances."

Lacked the Surgical Instruments

"We cotched one of de boys wid loaded dice."

His Boss: "You should ostracize him."

"Dat's what I wanted to do, but I didn't hab mah razor wid me."

Worst to Date

A mine superintendent, who had gone down into the lower levels to talk to a crew of men imprisoned by a cave-in, was getting their last messages.

"George," he shouted to one colored miner, through a narrow aperture, "are you married?"

"Nossuh," answered a lugubrious voice, "dis hyah am de wustest fix ah evah been in yit."—Legion Weekly.

NEWS NOTES

The Colorado Tubercular Association will be glad to furnish copies of Diagnostic Standards, Pulmonary and Glandular Tuberculosis, upon request. Address 305 Barth Building, Denver.

Dr. R. J. McDonald of West Portal, Moffat tunnel, is leaving for a year of graduate work at the University of Pennsylvania. He will then take up practice in some leading city of the West.

Dr. Kenneth D. A. Allen has returned to Denver from Philadelphia after a year and a half spent in post-graduate study in the subject of roentgenology. He will be permanently located in Denver, practicing in association with Dr. F. B. Stephenson.

Approximately four hundred physicians attended the Colorado State Medical Society meeting at Colorado Springs. Aside from the distinguished guests who were invited to contribute part of the program, Dr. V. J. Keating, President of the Wyoming State Society; Dr. Earl Whedon, Secretary, and Dr. Anderson, Editor-elect of the Wyoming section of Colorado Medicine, were in attendance. Dr. A. B. Small, fraternal delegate of the Texas State Medical Society, was also an appreciated visitor.

Dr. Edouard Rist of Paris will be the guest of the Denver Tuberculosis Society October 16th and 17th, coming here from the meeting of the International Union Against Tuberculosis in Washington, D. C. Dr. Rist will speak to physicians and others interested in tuberculosis, on the evening of October 16th.

The University of Colorado School of Medicine has opened its autumn session with more applicants for matriculation in the freshman class than could be accommodated.

MEDICAL SOCIETIES

COLORADO GENERAL HOSPITAL

August saw the various activities of this institution maintained at the average level for the past months. The summer temperature did not seem to affect the attendance as would be expected. Whether this forecasts an increase in attendance when colder weather comes cannot be determined now. But the past years have usually shown such an increase in the clinics.

The Superintendent's Office has supplied the following data to compare with previous months:

Number of patients in hospital August 1	67
Number of patients admitted during August	158
Newborn included in above	9
Number of patients discharged during August	153
Number of patients died in hospital during August	9
Autopsies performed	7
Number of patients in hospital September 1	71
Number of counties represented	22
Average length of stay in hospital	16

The Oto-Laryngology Service again had the largest number with General Surgery, Medicine and Obstetrics following in the order named. Men comprised 55, women 59, and children 44 of those admitted. This institution still maintains its high percentage of autopsies, which compares favorably with similar institutions over the country.

The clinic hours of the Out-patients' Department which were changed from 12-2 to 8-10 a. m. on July 1st are to remain so for the coming year. The favorable response on the part of the Staff decided this action. And the attendance of the patients for August seems to show that they favor the early hour as much as the noon hour. During August the total attendance to the clinic was 2,749, a daily average of 106. A total of 429 new patients were admitted, and 144 refused treatment, or approximately 25 per cent. Financial reasons and recent treatment by a private physician are the principal causes for refusal of admission. Letters were written to 19 physicians with 13 replies, and of these, 8 approved the denied admission of the applicant.

The cancer clinic which is held every Wednesday from 11-1 is steadily growing. Recent attendance has reached 24 individuals, the majority of whom were new patients. As the purpose of this clinic is to educate the public to the necessity of early recognition of cancer, all persons are given a first interview. This is the policy followed at similar clinics in 16 other cities. Worthy patients are given treatment as required. Those able are directed to see a reputable, private physician at once, for treatment. Cancer is stated to cause approximately 10 per cent of the deaths in this country, equally divided between the sexes. Education of the public to recognize cancer early should reduce this high mortality.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

The past month has shown activities very similar to recent months reported. The institution appears to be quite active at all times. The following report comes from the Director's Office:

Patients in hospital August 1	57
Patients admitted during August	43
Patients discharged during August	38
Patients dying during August	3
Autopsies performed	2
Patients in hospital September 1	59
Counties represented	13

On September first 37 males and 22 females remain in the institution. During August one of each sex was sent to the Pueblo institution.

July and August saw increased activity in the traveling clinic. In July twelve days were spent in various localities situated in the San Luis valley. During August, eleven days were spent in towns located in southwest Colorado. A large attendance was noted in almost all localities visited.

Within the institution the Out-patients' Clinic fell off. One hundred and twenty-five were treated for 238 different times. The children's attendance showed the largest decrease. This will increase again with the beginning of school activities. House visits to see patients totaled 27, and 83 additional visits for follow-up work were made. Also 59 histories were taken of patients admitted to the hospital.

E. R. MUGRAGE.

Timberline Germ

The Rockefeller Institute is responsible for the isolation of another germ. This time it is the microbe that causes oryaf fever, a curious, highly fatal disease that occurs only in restricted localities of the Andes at altitudes above 6,000 feet.—Science Service.

NEW BOOKS

In conformity with the practice of the Journal of the A. M. A., and to increase the efficiency of the Library of the Colorado State Medical Society, certain complimentary books from publishers are not given out for review. Acknowledgement and thanks is hereby given the publishers for the following books, some of which will be reviewed later:

Surgical Clinics of North America. Lahey Clinic Number, June, 1926. Volume 6, Number 3, 214 pages with 54 illustrations. (Issued serially, one number every other month.) Per Clinic Year, February, 1926, to December, 1926, Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

Medical Clinics of North America. Philadelphia Number, July, 1926. Volume X, Number 1, Octavo of 260 pages with 24 illustrations. (Issued serially, one number every other month.) Per Clinic Year, July, 1926, to May, 1927, Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

The Treatment of Fractures: With Notes Upon a Few Common Dislocations. By Charles L. Scudder, M.D., Consulting Surgeon to the Massachusetts General Hospital, formerly Assistant Professor of Surgery at the Harvard Medical School. Tenth Edition, Revised. Octavo volume of 1,240 pages, with 2,027 illustrations. Philadelphia and London: W. B. Saunders Company, 1926. Polished Buckram, \$12.00 net.

The Surgical Treatment of Goiter. By Willard Bartlett, A.B., A.M., M.D., D. Sc. F.A.C.S. St. Louis. With Foreword by Dr. Charles H. Mayo, Rochester, Minn. With 130 Original Illustrations. St. Louis, The C. V. Mosby Company, 1926. Price, \$8.50.

Defective Memory Absentmindedness and Their Treatment. By Arnold Lorand, M.D. Carlsbad, Czecho-Slovakia, Author of "Old Age Deferred", "Health Through Rational Diet," Etc. Philadelphia: F. A. Davis Company, Publishers, 1926. Price, \$3.00 net.

Practical Materia Medica and Prescription Writing With Illustrations. By Oscar W. Bethea, M.D., Ph.G., F.C.S. Professor of Clinical Therapeutics, Tulane School of Medicine: Professor of Therapeutics, Tulane Graduate School of Medicine: Fourth Revised Edition. Philadelphia; F. A. Davis Company, Publishers, 1926. Price, \$4.50 net.

Cannula Implants and Review of Implantation Technics in Esthetic Surgery in Two Parts. By Charles Conrad Miller, M.D. The Oak Press, Chicago, 1926. Price, \$2.00.

The Duodenal Tube and its possibilities. By Max Einhorn, M.D., Professor of Medicine at the New York Postgraduate Medical School; Visiting Physician to the Lenox Hill Hospital, New York. Second Edition, Revised and Enlarged. Illustrated, Philadelphia, F. A. Davis Company, Publishers, 1926. Price, \$3.00.

Electrothermic Methods in the Treatment of Neoplastic Diseases. Designed as a practical handbook of surgical electrotherapy for the use of Practitioner and Students. By J. Douglas Morgan, B.A., M.D., Formerly Radiologist, Ross Pavilion, Royal Victoria Hospital, Montreal; Instructor in Radiology, University of Pennsylvania, Graduate School of Medicine. Illustrated with 36 Line and Halftone Engravings. Philadelphia, F. A. Davis Company, Publishers, 1926.

Clinical Pediatrics. By John Lovett Morse, M.D., Professor of Pediatrics, Emeritus, Harvard Medical School; Consulting Physician at the Children's, Infants' and Floating Hospitals, Boston. Philadelphia and London: W. B. Saunders Company, 1926. Cloth, \$9.00 net.

Surgery of Neoplastic Diseases by Electrothermic Methods. By George A. Wyeth, M.D. New York, Preface by Howard A. Kelly, M.D. Baltimore. With One Hundred and Thirty-seven Illustrations, Paul B. Hoeber, Inc. New York, 1926.

The Modern Treatment of Hemorrhoids. By Joseph Franklin Montague, M.D., F.A.C.S. Of the Rectal Clinic, University and Bellevue Hospital Medical College; Lecturer of Rectal Pathology; Fellow, American Proctologic Society, New York Academy of Medicine, and New York Pathological Society. Foreword by Harlow Brooks, M.D., F.A.C.P. Professor of Medicine, University and Bellevue Hospital Medical College; Fellow, American Gastro-Enterologic Society, American Association of Bacteriologists and Pathologists, New York Academy of Medicine. 116 Illustrations. Philadelphia and London, J. B. Lippincott Company.

Transactions of the College of Physicians of Philadelphia. Third Series, Volume the Forty-seventh. Philadelphia. Printed for the College, 1925.

BOOK REVIEWS

The Thyroid Gland. By Charles H. Mayo, M.D., Professor of Surgery, University of Minnesota, Mayo Foundation, Rochester Minnesota, and Henry W. Plummer, M.D., Professor of Medicine, University of Minnesota, Mayo Foundation, Rochester, Minnesota. Series Number Four. The Beaumont Foundation Lectures. Auspices of Wayne County Medical Society, Detroit, Michigan, 1925. The C. V. Mosby Company, St. Louis. Price \$1.75.

This volume is a small pocket sized book containing 83 pages, which not only gives complete medical data in regard to the subject of the Thyroid Gland, but is written in such a manner that all who are interested in the study of medicine and surgery, and even the average patient, might read and glean a valuable knowledge of the subject from its pages. The style used in writing this book is concise, but explanatory. From a medical standpoint the book gives the reader the proper idea as to the functioning of the thyroid gland. The knowledge of the presence of the thyroid gland reverts to the early date of 330 A. D., at which time an operation for genuine goitre was performed. Since that time the scientific investigation of the thyroid gland has been undertaken

by numerous individuals. A study of this volume will enable the medical man of today to appreciate what has been done in this field. The entire subject is thoroughly covered by these two most eminent authorities. The first few pages deal with the history, anatomy, physiology, etiology, and development of the thyroid gland. The classification of the diseases of the thyroid gland is compact and specific, and the instructions concerning the treatment is indeed valuable information to the medical profession to the medical profession at the present time.

GEORGE B. KENT.

Lister and The Ligature—A Landmark in the History of Modern Surgery. Compiled by The Research Readers of the Scientific Department. Published by Johnson & Johnson. New Brunswick, New Jersey, U. S. A.

There are certain epoch making dates in all great lines of human endeavor. Such a landmark in the history of modern surgery began with Lister's use of catgut for the ligation of blood vessels. He was hooted by his countrymen, ignored by the profession and ridiculed as a fanatic. He, however, continued his lectures and demonstrations regarding absorbable suture material for surgical cases, and finally won the admiration of the medical world. Extracts explaining his tedious efforts are contained in this little book from his own writings. We will always be indebted to him, who first showed us the way in which to advance.

WILFORD W. BARBER.

Ears and the Man: Studies in Social Work for the Deafened. By Annetta W. Peck, Estelle E. Samuelson, Ann Lehman. With an introduction by Wendell C. Phillips, M.D., President-Elect of The American Medical Association. Philadelphia. F. A. Davis Company, Publishers. Price, \$2.00.

A little book of more than ordinary importance, written by three women who are permanently and hopelessly deafened. Their work is a classic in which they have ploughed deep in virgin soil expressing their thoughts in almost reverential tone. The student of sociology, those handicapped through deafness in any degree, the otologist, the laity, and the medical profession, all will find on reading this book new information, stimulating suggestions, and a feeling of tolerance for those less fortunate than ourselves.

The beacon of hope for those whose hearing is impaired lies first in the aid the medical profession can give; secondly, through mechanical aids to hearing and finally through the art of lip reading.

Perhaps the general nature of the book could better be given if one quotes a paragraph from the last chapter:

"As truth must be the basis of all progress, the honest otologist is a power in all work towards the prevention of deafness. Telling his patients the truth about their own ear trouble is not yet the universal practise that it should be. This honesty should go farther; it should be so convincing that it should leave no room for any desire to consult the charlatan. The building up of such a psychological reaction should include guidance into successful deafness—advice that will set the patient hopefully on his way, helping him to turn from the facts of his undeafened past to the unsounded possibilities of a future that may yield even greater happiness and success.

When this advice has been offered the organization for the deafened should stand ready to receive the patient from the otologist and complete his humanitarian work. We quote from one of the most distinguished and honored of the profession, who not only advises justly and honestly in cases of incurable hearing loss, but who works, as well, in an organization for the deafened in the spirit of fraternity: "In the presence of this audience of otologists I need not attempt to enlarge upon this phase of the hearing problem. I know of no more trying experience than to be called upon by a deafened patient to give a final opinion, when no hope of permanent improvement may be held out. We older otologists frequently are obliged to face this ordeal. In the functioning of this experience the prevention of deafness plays no part, for in every instance the days of prevention have passed. Likewise in the majority of cases no well founded hope for improvement can conscientiously be vouchsafed. We must face the bald facts surrounding his deafened condition, not only in the patient's interest, but it must be in a manner that will preserve our own integrity and honesty of purpose. At this very point arises the otologist's opportunity to become his patient's neighbor in the highest sense, and it is here that he may profitably enter the field of sociology, at least so far as sociology as a science may pertain to the welfare of his deafened patient. It is one thing for the otologist, after having conducted all the hearing tests, to conscientiously tell a deafened person, even in the kindest way, that his deafness must remain permanent. It is quite another attainment to go to the necessary length of demonstrating to him how to overcome his handicap. The first is an ordinary professional business transaction—the second requires time, self-sacrifice and toil beyond the realm of financial remuneration. The otologist who contents himself with the rendering of his scientific opinion only, must be classed with the priest or the Levite who came and looked on and passed by on the other side."

WILFORD W. BARBER.

Diathermy With Special Reference to Pneumonia.

By Harry Eaton Stewart, M.D., formerly Attending Specialist in Physiotherapy, U. S. Marine Hospitals, N. Y., Consultant in Physiotherapy, U. S. V. B. Hospital, New Haven, Conn., Director, New Haven School of Physiotherapy; formerly Assistant Director, Section of Physiotherapy, Office of the Surgeon General, U. S. Army, and Supervisor of Physiotherapy, Bureau of Public Health Service, Washington. With Forty-five Illustrations and Fifteen Charts. Second Edition, revised. Price \$3.00. Paul B. Hoeber, Inc., New York, 1926.

This book is full of information and shows conclusively the importance of diathermy especially in pneumonia, and will convince any one of the vital importance of any therapeutic agent in this dreaded disease. The method is described in minute detail and contraindication and precautions for its use are set forth in clear language. This rather new form of treatment certainly deserves attention and further trial by all who wish to do the most for their patients with pneumonia. The diagrams and illustrations greatly aid the reader in understanding the application of this new remedy.

The book will be useful for those who wish to make a study of treatment with diathermy.

WILFORD W. BARBER.

TUNING IN

Graduate Assembly Meets

The Inter-State Graduate Assembly of North America will meet in Cleveland, Ohio, October 19-22, inclusive. Pre-Assembly Clinics in the Cleveland hospitals will be held October 14-16, inclusive.

This Association is purely a Post Graduate Association. It exercises no political nor legislative duties.

It is the aim of the organization, in its annual assemblies, to present to the medical profession the approved advancements in medical science and research, not unmindful of the practical side of medical study. To this end diagnostic clinics, orations, symposia and discussions are offered.

Physicians should make their reservations as early as possible by communicating with the hotel of their choice, or the Convention Bureau, Cleveland Chamber of Commerce.

A special invitation is extended to the members of the medical profession to visit the new Babies' and Children's Hospital located at 2105 Adelbert Road and can be reached by taking the East Cleveland car line or the Euclid and East 140th line.

Tuberculosis Program in California

The California Tuberculosis Association's program this year includes among other activities, the continuation of an intensive course in tuberculosis at the University of California in both the public health nursing and sociology departments. The Berkeley Health Center will be used as a laboratory for training in intensive case work. Four lectures a week will be given besides close supervision over the field work. A special lecturer is to be added to the association's staff for instruction in tuberculosis in hospitals where the training school does not provide opportunity for training in the care of tuberculosis patients. A study is to be made by a woman physician of the children in the camps operated by the local tuberculosis associations. The intracutaneous test will be given all children and a positive reaction to the test will mean consultations with the parents and recommendations for their school program for the coming year. Arrangements are also being made with local boards of education for a special appropriation for chest clinics among high-school students. The association has completed a diagnostic chest clinic on one of the Indian reservations.—Bulletin of the National Tuberculosis Association.

Infant Mortality Rate, New Zealand

New Zealand has still further lowered her world-record infant mortality rate, according to vital statistics of the Dominion for 1925 which report a figure of 39.96 per 1,000 live births as compared with 40 in 1924. In some of the large cities the rate was even lower, that for Dunedin being 33 and for Wellington 35. The provisional United States rate for 1925 was 72.—Children's Bureau.

Cholera in Bangkok

According to the latest reports, the cholera epidemic continues in Bangkok, Siam. From May 2 to 22, 1926, there were reported 944 cases of cholera with 508 deaths in Bangkok, 362 cases with 192 deaths being reported for the week ended May 22.—Public Health Reports.

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Trend of Maternal Mortality Since 1900

Figures showing the trend of maternal mortality over a 22-year period in the United States, if accepted at their face value, would show an increase in the material death rate from 13.3 per 100,000 population in 1900 to 16.9 in 1921, according to the report. However, analysis of various factors affecting these statistics, particularly the campaign for better certification of the causes of death during recent years, would indicate in reality a "very slightly downward trend" since 1900.

Comparison of the United States rates with those of other countries shows that the United States ranks among those having the highest rates, such as New Zealand and Chile. Among the countries having rates less than half that of the United States are Denmark, Finland, Italy, Japan, the Netherlands, Norway, Sweden, and Uruguay.—Children's Bureau.

Typhoid Fever

During the past six weeks seven cases of typhoid fever have been reported in Denver.

In five of the seven cases the infection was definitely traced to other communities. The majority of the cases were contracted while on trips, either in the mountains or to other states.

Of the two infections contracted in Denver one was apparently through food. The source of infection in the second case could not be traced.—Monthly Bulletin of the Denver General Hospital.

The Influenza Epidemic of 1926

The wave of influenza in the last winter and spring of 1926 in the United States was more than ordinarily severe when compared with the influenza outbreaks which have occurred since 1920. Measured by the excess of mortality over the corresponding period in 1925, which was not an "influenza year," the toll in lives exacted by the disease was by no means negligible. In fact, were it not for the over-shadowing pandemic of 1918, which caused over 500,000 deaths in the United States alone, and the epidemic of 1920 which caused about 100,000 deaths in this country, the 1926 outbreak would have been regarded as a calamity.—Public Health Reports.

Progress Abroad

The Norwegian Red Cross began a campaign recently for improving school hygiene, particularly with a view to preventing the spread of tuberculosis. Hygienic drinking fountains are recommended to replace the common drinking cup. The Red Cross also recommended a system of regular medical examinations for all schools, and advocated that every school should maintain a first aid kit. In country districts where children come from long distances to school, it is suggested that the juniors might work to provide a change of shoes, so as to enable children to escape the danger of sitting in school with damp feet. In one town the juniors have started the distribution of hot soup at noon.

To combat infant mortality, so often the result of carelessness or ignorance, the Swiss Red Cross has cooperated with local authorities in organizing child welfare exhibitions. Through life-like models, demonstrations were given of the correct methods of feeding, bathing and dressing a baby. Charts and pictures, illustrated the health rules. Eminent doctors contributed to success by giving talks on child health. The Red Cross is preserving this exhibit with a view to eventually founding a popular health museum.—Red Cross Courier.

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Diphtheria Immunization in Buffalo

In 1919 Buffalo had 3,589 cases of diphtheria. It is to be assumed that many of these cases were treated with antitoxin. The death rate that year was nearly 10 per cent, a great advance over the rate of pre-antitoxin days.

Immunization by toxin-antitoxin began in 1921. The number of cases of diphtheria in 1925 was 356 with 31 deaths. The rate remains about the same after the disease exists but the number of cases is so much less that credit may fairly be given to the immunization procedure.

Buffalo joins the rest of the state in the war cry, "No Diphtheria by 1930." This happy condition will be brought about all over the country if all infants are immunized before six months of age. Diphtheria is more common and more deadly in the age period between six months and five years.

Every general practitioner is especially responsible for the dissemination of useful information among parents with respect to all communicable diseases.—The Boston Medical and Surgical Journal.

National Methodist Sanitarium

The first unit of the National Methodist Sanitarium was recently opened at Colorado Springs, Colorado. There was no formal ceremony. The official dedication and opening will take place November 9th while the Board of Bishops is in session at Denver, Colorado.

This is the first unit of the \$2,000,000 Sanitarium. The entire project when finished will have 500 beds and is for tuberculosis patients only.

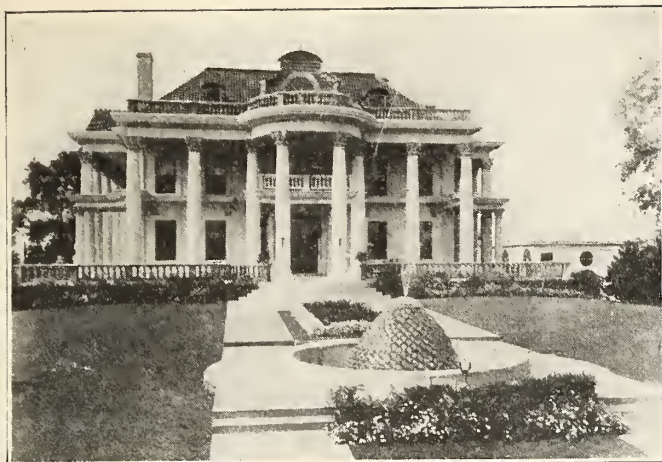
Chiropractic Legislative Activities

This cult is making a determined effort to secure recognition by Congress. According to certain letters which have been published, two thousand chiropractors are writing to congressmen appealing for the enactment of a law which will provide for chiropractic treatment for disabled veterans.

These practitioners claim that there are two objectives, one for humanitarian treatment of these veterans, and the other, putting chiropractic on a "secure national basis."

The bill in question is Senate 4,124, amending 10,240. Each chiropractor is urged to send five letters at least naming Senators Reed, Smoot, Richard Ernst, Simmons and George as especially influential members of Congress. Also each chiropractor is asked to write to his own state senator and representative. Further advice reads as follows: "Get these letters streaming out of your community at the rate of 50 to 100 daily." Also circulate petitions which may be sent to George B. West, Washington, D. C.

One heading reads: "Make chiropractic available to each disabled veteran at government expense." One choice excerpt is, "Satan, the greatest surgeon and dope shooter of all, slices off fifty years from each normal life span. One hundred and twenty years is the age for which every man is entitled to hope if he obeys the law of God and keeps his backbone normal." The physician is spoken of as "the Medical Hun who has a strangle hold on the lives of these sick and suffering men." The claim is made that chiropractic can restore those men who have been pronounced incurable by the medical profession.—The Boston Medical and Surgical Journal.



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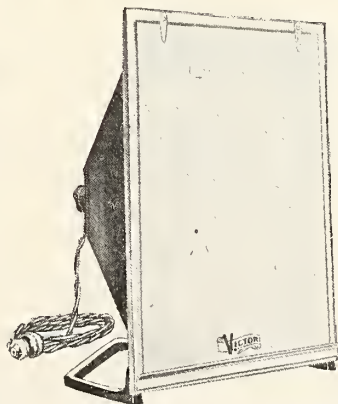
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Pullman Porters All Vaccinated

The report of the discovery of a number of cases of smallpox among negroes employed in brickyards along the Hudson river, noted in Health News for June 28, was brought by the department to the attention of Dr. Thomas R. Crowder, Director of the Department of Sanitation and Surgery of the Pullman Company. In a letter Dr. Crowder states that before a negro is taken into the service of the company as a porter he must either be vaccinated or show evidence of a recent successful vaccination. The physician making the examination must satisfy himself that the scar is less than five years old; if older than this, at least one attempt at reinoculation is required. Applicants must also be examined as to physical fitness. Approximately 12,000 negroes are employed by the company as car porters.—Health News.

Results of Goitre Survey

1. The thyroid survey in Connecticut included 5,797 boys and 6,608 girls in 28 localities.
2. In all, there were 2,347 thyroid enlargements, a percentage of 18.9 among the 12,405 children examined.
3. According to degree of thyroid enlargement there were 366 or 6.3 per cent, very slight enlargements among the boys, and 1,428 or 21.4 per cent among the girls. There were 35, or 0.6 per cent, slight and only 1 moderate enlargement among the boys, while among the girls there were 426, or 6.4 per cent, slight and 63, or 1.2 per cent, moderate involvements. There were also 6 marked and 2 very marked enlargements among the girls.
4. Among the boys the percentage of thyroid involvement declines as the higher age periods are reached. Among the girls, on the other hand, the percentage of enlargement increases until the age of 17 is reached.
5. In so far as the present survey is concerned there appears to be no section of the state of Connecticut in which endemic thyroid enlargement is more prevalent than another. However, the affection is more frequently encountered in some localities than in others.
6. A comparison of thyroid enlargement in Minnesota, Cincinnati, and Connecticut shows that the last named has the least amount.
7. There appears to be no correlation, in so far as the present study discloses, between the prevalence of thyroid enlargement and the principal geologic formations in Connecticut.—Public Health Reports.

The Practice of Preventive Medicine

Physicians are generally fairly well equipped to recognize fully developed diseases and to treat them after they have been diagnosed. But the stage when a diagnosis is possible has been advanced earlier and earlier in the course of a sickness until now the general character of a disorder may be recognized in its very incipiency. A diagnosis implies the immediate establishment of and appropriate line of treatment. Dr. Samuel Lambert's definition of diagnosis is peculiarly appropriate: "Diagnosis is a working hypothesis for the application of therapeutics, subject to change without notice on the discovery of further evidence."—New York State Journal of Medicine.

There are between 100,000 and 150,000 drug addicts in the United States according to the estimates of the U. S. Public Health Service.

Colorado Medicine

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EDITORIAL NOTES AND COMMENT

EDOUARD RIST*

To Coloradoans sitting on the top of the world, Paris is but a short distance, but it takes an exceptional occasion to turn the tables so that even our eastern American colleagues will admit that the reverse is true. To them the wild and woolly West, next in terrors to the darkest regions of Africa and South America, is still swarming with Indians and dangerous wild beasts. It is indeed a privilege when two concomitant events bring to us some of our confrères from other continents to tell us about their work and to see what we are accomplishing. Eighteen years ago our glorious capitol city, Washington, D. C., was the host of an international meeting which left an indelible impression upon American medicine in general and upon students of tuberculosis in particular. This year, 1926, on September 30th to October 2nd, there was held another such gathering of men of international reputations at the fifth conference of the International Union Against Tuberculosis, followed by the twenty-second annual meeting of the National Tuberculosis Association in Washington. Most of them were well acquainted with American physicians abroad and one became venturesome and accepted Colorado's invitation to "come west" to partake of our hospitalities and "swap experiences" for better or for worse. Dr. Edouard Rist, chief physician of The Laennec Hospital and Leon-

Bourgeois Dispensary of Paris, like General Lafayette was not strange to Americans, thanks to the better side—the fellowships—of war. Our buddy, as his distinguished service medal will attest, and his citation will tell you more, "As an eminent scientist, by his untiring zeal, devotion and energy be promoted the efficient treatment of the American sick and wounded." This was his fourth visit to the United States, in 1917 occupying a desk in Surgeon General Gorgas' office and in 1919 being invited to accept the chair of medicine at the University of Michigan. During his visit to Colorado he spoke authoritatively to the physicians of Denver and Colorado Springs of his experiences with the social and economic aspects of tuberculosis and his prolonged experiences with treatment, lauding pneumothorax appropriately applied. He visited our tuberculosis sanatoriums and hospitals because he wanted to see where we were doing our work, and left us with an expression of pleased admiration as well as encouragement to carry on. He believed it was fitting that Colorado should be honored in having its foremost medical investigator and physician, Dr. Henry Sewall, chosen as the president of the National Tuberculosis Association and hoped this would both inspire Colorado to further accomplishments as well as tempt our eastern colleagues to drop in and see our work. To Colorado's physicians it was a compliment and a pleasure to have been honored by your visit, Dr. Rist, and may you soon return again and passing this way, enter our midst as one always most welcome.—H. J. C.

*Chief Physician of the Laennec Hospital and the Leon-Bourgeois Dispensary, Paris, and the Fifth Conference of the International Union Against Tuberculosis at Washington, D. C., 1926.

THE PHYSIOLOGY OF THE GASTRO-INTESTINAL TRACT

There is, perhaps, no field in medicine that is so little understood, and at the same time of so great clinical importance, as the gastrointestinal tract. Since early in the development of scientific medicine investigations have been conducted in this difficult field, but it is only in recent years that intensive and extensive researches have begun to clear the way for a more exact analysis of the factors involved in this intricate mechanism. It is a compliment to American medicine that the leadership in this scientific field has been assumed in this country by the Department of Physiology of the University of Chicago.

On the evening of September 28th, the faculty of the University of Colorado School of Medicine was honored with a lecture on the "Physiology of the Gastro-Intestinal Tract" by Dr. A. J. Carlson, professor and head of the Department of Physiology at the University of Chicago. Dr. Carlson is unquestionably the greatest living authority on the gastro-intestinal tract. He has labored in this field over a period of many years and has trained a large number of physiologists, among whom are Drs. Leuekhardt, Ivy, Dragstedt, and our own Dean Rees.

In his lecture Dr. Carlson reviewed the work that has been accomplished in his laboratory. Among other things he emphasized the danger of accepting and utilizing such preparations as "hormonal" before they have been thoroughly tested out in the experimental laboratory. Extensive investigations were conducted in the Chicago laboratories in which it was found that such preparations as "hormonal", "choline" and other extracts do not contain any **specific** substance which stimulates intestinal activity.

The factors involved in causing secretion of gastric juice were discussed by the speaker. He reviewed the evidence given by various investigators in support of the contention that there is a hormone liberated from the stomach during digestion and which is the active principle in one of the

phases of gastric secretion. That this substance is not specifically derived from the gastric mucous membrane is demonstrated by the experiments of members of the Chicago school of physiologists. It has been shown by them that "gastrin-like" substances can be extracted from plants (spinach) as well as from the gastric mucous membrane and other tissues.

It has been thought by some investigators that the physical influence of food in the stomach is the essential stimulus for gastric secretion. Pavlov, the great Russian physiologist, conducted a series of experiments to test out this factor. Through an opening into the stomach of a dog, a blast of sand was blown with considerable force against the gastric mucosa. From these experiments Pavlov concluded that mechanical stimulation has nothing to do with the causation for gastric secretion. Dr. Carlson pointed out that the stimulus in these experiments was abnormal and consequently unreliable as a basis for drawing conclusions. He also reviewed experiments conducted in his laboratory in which the stomach was distended by air (balloon method) or food and in which it was found that the purely physical stimulus was sufficient to cause gastric secretion.

One of the most interesting set of experiments that has been performed on the normal and abnormal functioning of the stomach was reviewed. These experiments which were conducted by Dr. Ivy and co-workers in the Chicago laboratories consisted of making a transplant of a part of the stomach to the mammary gland. The transplant was made in such a manner that a fistulous opening was retained from which the mucous membrane could be observed and its secretions collected. It was found that following alimentation gastric juice was produced in the explanted pouch. This gastric juice contained free hydrochloric acid. Obviously, the explanted gastric pouch had been severed from its original extrinsic nerve supply. These experiments are extremely interesting and demonstrate conclusively that gastric secretions can take place in the absence of a normal extrinsic nerve innervation. Dr. Ivy has pointed out that the intrinsic nerves

were undoubtedly still intact and that it is possible that they may be responsible for the stimulus. He also holds forth the possibilities that something in the blood, or the blood supply itself, may contain the stimulating factor.

Dr. Carlson further discussed some of the clinical problems concerned with the gastrointestinal tract. The idea of starving a patient to decrease the work of the stomach was discouraged. He has shown by experiments that animals subjected to a prolonged fast continue to secrete gastric juice, and the gastric hunger contractions become intensified during the progress of the fast.

Dr. Carlson has been especially fortunate in having in his laboratory for a number of years, a man with a fistulous opening into the stomach, due to an atresia of the esophagus developed in early childhood. A number of very interesting observations were made upon this patient, one of which might be mentioned. Ordinarily, the patient chewed his food before introducing it into the stomach by way of the fistulous opening. When the food is being chewed gastric juice begins to flow in the stomach. On one occasion, when it was attempted to demonstrate this activity before a class of students, the gastric juice failed to flow. This demonstrated the influence of emotional states on normal physiologic activity.

The cause of pain in ulcer of the stomach was discussed at some length. Various views have been held in regard to the factors responsible for these pains. During the past year, Dr. Palmer and Dr. Carlson have made an intensive study of gastric ulcer pains, and while they have not as yet reached definite conclusions, they have found that free hydrochloric acid appears to be one factor and possibly hunger contraction operating on a denuded surface may be another factor.

The work that is being carried on in a number of laboratories in this country, and which have had their inception in, and which are still being stimulated from Dr. Carlson's laboratory, are leading to a more precise conception of the factors involved in gastrointestinal physiology. The day does not seem so far distant when clinicians can look

for fundamental discoveries in this particular field which will lead to more accurate methods in diagnosis and treatment of clinical cases.

I. E. W.

DE SENECTUTE

Cicero in his day attempted to palliate the burdens and infirmities of the aged by developing for them a wholesome type of thought regarding such matters. With the passing of centuries the need for such palliation has in no wise decreased. In fact, due to the diligence with which medical science has been applied, the span of life is constantly lengthening. This of course means that an increasing number escape the accidents of life to pass into the decay of the senium.

Perhaps a revival of a philosophy similar to that Cicero imputed to the aged Cato would be a good thing. The mental attitude with which many people approach and live the span of advanced years frequently needs correction. Unless this is done, the most skillful therapy directed toward the physical ills is likely to be of little value.

But there are certain diseases peculiar to the aged just as truly as there are diseases peculiar to infants. There are vascular changes affecting the brain, heart, kidneys, pancreas and other organs; there are also atrophic and malignant changes of tissues with their resultant symptoms; skeletal, muscular and sensory changes; these processes of degeneration and decay have a definite pathology and pathologic physiology, differing markedly from the accidental and exogenous diseases of earlier years.

The point is this, that preventive measures of medical men have created new problems in therapy. Special thought is, therefore, desirable in the organization of therapeutic measures peculiarly adapted to the infirmities of the aged. Certainly much can be done to lessen the load of senile changes. Probably there exists no good reason for the creation of a distinct specialty of geriatrics, but there is a growing need for the development of the art of medical practice effective in alleviating the physical and mental handicaps of senile origin.

MALNUTRITION AND DENTAL DEFECTS IN COLORADO CHILDREN*

At Moderate and High Altitudes

BY ROY P. FORBES, M.D.

DENVER COLORADO

The physical status of the well school child has been the subject of organized study for only a few years. Denver has prided herself for years on her public schools, but she has had a school Health Department with paid physicians and nurses for only four years. The periodic health examination so strongly urged by life insurance companies for adults is vouchsafed to the growing child by all large cities. Unfortunately rural school teachers and children have not had access to the rapid evolution of health education so that the nutrition of the rural child is apt to be inferior to that of his urban cousin. Therefore our childhood conception of the country lad, as being physically superior to the town boy, must be revised.

In some eastern and central states, health education has progressed to a considerable degree in rural districts. Colorado has as yet very few public health nurses outside of its cities, and most of the health education for its rural communities has had to be sponsored by state-wide agencies and is still a pioneer work. Fortunately, a happy scheme of cooperation has been evolved in the organization of a traveling "Health Clinic" in which the State Child Welfare Society, Board of Health, State University, State Psychopathic Hospital, Colorado Tuberculosis Association and State Dental Society send trained workers into rural communities to make complete physical examinations of the children, and to promulgate the latest facts in health education to the parents. State and federal funds available through the Sheppard-Towner Law, made possible the nucleus of this health unit. The work has been well received in the communities and the data obtained at the examinations is considered of sufficient interest to summarize, in part, and compare with simi-

lar data obtained by the Denver School Health Department.

The Baldwin-Wood tables were used in calculating the variations from normal weight in both the rural and urban groups of children. The present study includes the records of 2,444 pre-school and school children examined at rural health conferences. Nutrition workers are frequently asked what relation, if any, high altitude has to malnutrition and an attempt has been made to answer this question with the data available. Therefore approximately half (1,204) of the records were chosen from conferences held at moderate altitudes or less than 5,000 feet, and half (1,240) from examinations of children living at an altitude of 7,500 feet or more. The weight records of 3,500 Denver children are compared to the two rural groups (Charts 1, 2, 3). The children range in age from 3 to 15 years and about an equal number have been chosen for each group for each of these twelve year periods.

Physicians, dentists and dental hygienists working in the health conferences have frequently commented upon the numerous dental defects found at high altitudes. We have therefore included in this study a comparison of some of the dental findings in the same three groups in which malnutrition is studied. (Charts 4, 5 and 6.)

Although the number of cases included in this study is not enough to obtain an exact estimate of the average state of nutrition of rural Colorado children, we feel justified in emphasizing certain obvious comparisons shown on the charts. There is less than half as much malnutrition among the school children of Denver as compared to the rural children. Five years ago malnutrition was estimated at 33 per cent in Denver, but since then a vigorous health campaign has been in progress and the present figure of 24 per cent is the logical result of well directed effort. There is apparently more milk drinking, better breakfasts and more effort to

*Read before the fifty-sixth annual meeting of the Colorado State Medical Society, Colorado Springs, September 21, 22 and 23.

CHART-1. NORMAL GROUP.

Percent of children normal in weight to 19% overweight

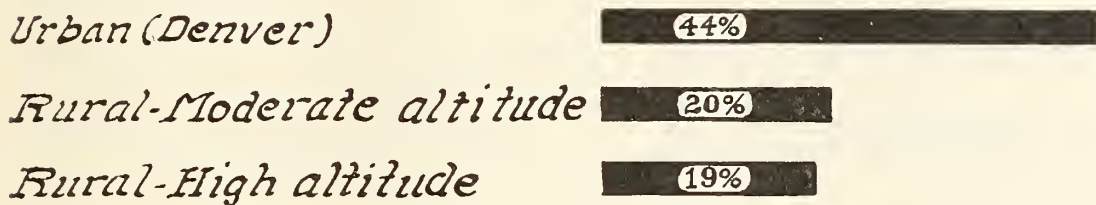


CHART-2. MALNUTRITION.

Percent of children 7% or more underweight.

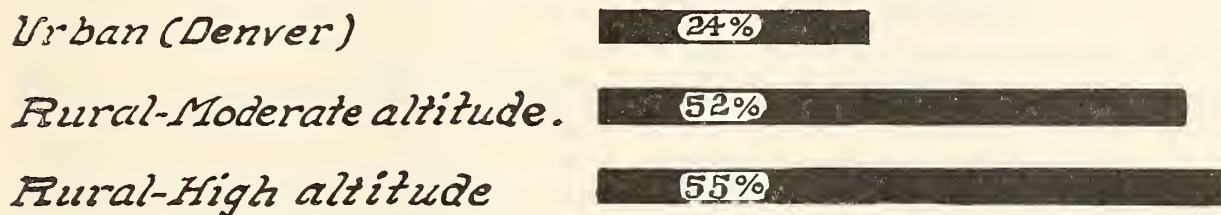
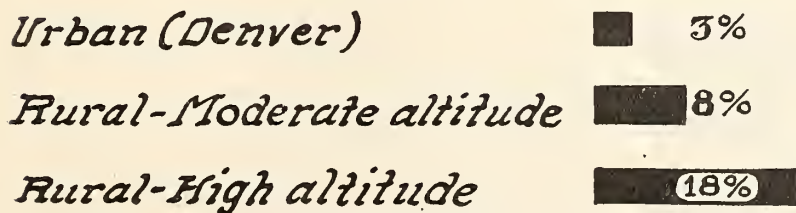


CHART-3. SERIOUS MALNUTRITION.

Percent of children 15% or more underweight.



prevent over-fatigue among city children than in the rural districts; physical defects are more quickly detected and corrected and school authorities, parents and physicians are on the alert constantly to find and remedy all the causes of malnutrition.

The so-called "rural groups" include a large number of children living in small towns. Larger towns providing a school or community nurse were purposely excluded, as were weight records from a prosperous agricultural district in which school nursing has already reduced malnutrition among the children. Thus, the figure of 52 per cent is probably somewhat higher than the true average for the lower altitude rural children. However, one would not be justified in concluding from this study that the altitude factor is important in determining the incidence of malnutrition. Severe malnutrition (15 per cent or more under weight), however, is encountered much more frequently at the higher altitudes as seen in Chart No. 3. We are not at present ready to offer an explanation for this very interesting finding. It is possible that some of the factors influencing the high percentage of dental defects at high altitudes may also contribute to the severe malnutrition. But, if such is the case, why do we find such a low incidence of malnutrition in Denver children, associated with a very high incidence of dental caries? It is apparent that the relation between malnutrition and dental caries is not necessarily one of cause and effect. The various causes commonly mentioned in connection with malnutrition and dental caries probably operate to a greater or less degree in all of the three groups studied. Rickets cannot be taken as a common cause of the two defects, because severe rickets is uncommon in Colorado. The excessive ingestion of sweets can hardly be assigned as a cause of the high percentage of dental defects in the high altitude group, because the rural children at moderate altitudes doubtless consume as much as those living at high altitudes. Neither group is exposed to the candy temptation to the same extent as the city child, who has to pass several of the parasitic candy stores on his way to school. On

the other hand the accessibility to oral prophylaxis and dental care cannot be an important factor because the urban child has somewhat the advantage even though his mouth does not reflect such opportunity.

It is not within the scope of this paper to attempt an explanation of the dental findings, but certain observations noted in three years of health conference work may have some significance in the interpretation of the data presented. Colorado counties at high altitudes are of course sparsely settled and, since the decline of mining, are economically less fortunate than the low land irrigated counties of the eastern slope. Not only are the high counties geographically less accessible to health education, but the economic factor prohibits the use of public health nurses by county or school funds. Furthermore, the value of the dollar is less at high altitudes, further enhancing the economic factor in relation to nutrition. Perishable fruit and vegetables are expensive when transported over mountain grades; the season for gardening is short; the winters are long. Milk is more expensive than in the lowlands and there is apparently less milk drinking and more use of canned milk and other canned foods. These climatic and economic factors are all conducive to the use of that fatal American diet consisting of white bread, meat, and potatoes. McCollum has shown that this diet is particularly deleterious to the development of the teeth.

An intensive study of severe cases of malnutrition and dental defects in children at high altitudes would be a work well worthwhile. Such a study should include an analysis of the family budget, the winter and summer diets of children, and a study of the diet of women during pregnancy and lactation. If valuable information might be gained from such data and included in the health education propaganda of the future, Colorado children in both rural and urban communities would probably show less malnutrition and fewer dental defects in some future survey.

Conclusions

1. The incidence of malnutrition as determined by arbitrary height-weight standards

CHART-4.

Percent of children with no dental defects.

<i>Urban (Denver)</i>	34%
<i>Rural-Moderate altitude.</i>	45.1%
<i>Rural-High altitude</i>	32%

CHART-5.

Percent of children with three or more cavities.

<i>Urban (Denver)</i>	29.7%
<i>Rural-Moderate altitude</i>	27.4%
<i>Rural-High altitude.</i>	39%

CHART-6

Percent of children with abscessed teeth.

<i>Urban (Denver)</i>	12.4%
<i>Rural-Moderate altitude</i>	2.5%
<i>Rural-High altitude</i>	10.9%

is only half as great in Denver as compared to rural Colorado communities either at moderate or high altitudes.

2. Severe malnutrition (15 per cent or more underweight) is nearly twice as common in children living at high altitudes as compared to unselected rural groups living at moderate altitudes, and seven and one-half times as frequent as among the urban (Denver) group.

3. Dental defects, including caries and abscesses, are most frequently encountered in the city children and in those living at high altitudes. Rural children at moderate altitudes have relatively good teeth.

4. It is suggested that certain climatic and economic factors which affect particularly the winter diets in communities at high altitudes, may be responsible for the dental findings and possibly for some of the marked malnutrition found in these districts.

5. An intensive study of the relation between diet and dental defects at high altitudes is suggested.

DISCUSSION

A. J. Wenk, Colorado Springs: Dr. Forbes' very excellent comparisons do not demand any discussion, nor does the type of work that this paper represents need any commendation or comment. His conclusions are interesting, particularly the first two. It seems to me that Dr. Forbes' paper raises two questions of interest; first, is this type of work "Organized health education" worth while? Second, do we have to add to the five chief causes of malnutrition which we now recognize? Should we add altitude, *per se*, as the cause of malnutrition? I think we do not have to add altitude as such as a cause.

In speaking of the causes that operate in the high altitudes, Dr. Forbes gave largely the points that I had in mind, and possibly we have a few more still, some that I feel operate certainly in cases of malnutrition in these altitudes. One of the things we find largely all over the state are these consolidated high schools, where the children have to go to school early in the morning, have a long bus ride, no opportunity to rest, and, if their school is out early, they have to wait until the bus goes in the evening; consequently, these little children have a day's work from 7:00 o'clock in the morning when the bus goes by their farm, to possibly the same time in the evening, certainly 5:30 or 6:00 o'clock. The buses are going over rough roads, and certainly the children must be tired to begin with; and one of the things I have remarked upon, does the bus contribute to that? We rather have felt in some communities that it does. The farm labor in some of these communities is another thing. These children have to do a certain amount of chores which the city children do not have to do. Probably the diet is the largest single factor in the extreme malnutrition of high altitudes. For instance in the little town of Rico in the winter time they have to ship the

cows out altogether, and they have no milk at all in the community. It was suggested that they make some arrangement to have fresh milk in summer. In the San Luis Valley they raise fresh vegetables but they are largely starchy. We have no equalization over the state necessary for complete diet of the children. Another thing, we have operating in this state—I don't know how many of the cities of that type Dr. Forbes has included—is the underweight of these children; we expect these children to be underweight. We have another cause of malnutrition which of course it is the business of the Health Conferences to discover, and that is the health defects. I think you will find a larger per cent of children in Colorado with physical defects than in the country at large and it is a question largely of the other factors of malnutrition. Faulty health habits, faulty home control, faulty food habits and over-fatigue are the causes of malnutrition. Certainly in starting out to do health work in rural communities, the proclivity of attempting to bring health education to these areas is a question, and yet this same question must have arisen at the incipency of organized work in the urban communities. Yet Dr. Forbes' figures of 11 per cent of malnutrition in the Denver schools, and the statistics in other cities where the work has been carried on, show the value of this type of work. The same thing is being carried on in our state through the agency of which Dr. Forbes has spoken. These people in the rural communities are not ignorant of health and hygiene matters, but they have not, as Dr. Forbes has suggested, had the opportunity of getting the education that the average city child has, whether or not there is organized health work in the state. I think the idea that this is a turning away from private practice towards state medicine is largely dissipated, or has been soon after a health conference. Dr. Forbes also suggested that the American Medical Association has put an indictment on the Shepherd-Towner Act, whose funds supply largely the finances for the rural health in Colorado. At the same time, they are supporting periodic health examinations of the adults, and the two seem a little incompatible. At least many of the men who have seen this work in this state must feel that, if we are to use our influence against a re-enactment of the Shepherd-Towner Act which furnishes the finances for this purpose, it would be indeed unfortunate to Colorado's rural areas.

W. J. McMenamy, Denver: My few words will not be a discussion of Dr. Forbes' paper, but merely some observations of the teeth that I have seen, and the effect of diet upon the teeth. I am not surprised that malnutrition has been reduced in Denver, for the dental examination in 1924 and 1925 shows that 73 per cent of the public school children had dental defects of one order or another. Also the examination in 1924 and 1925 shows 25 per cent of our children with abscessed teeth. The 1925-1926 examination shows that we still had 73 per cent of dental defects, but only 15 per cent of the children with abscessed teeth. As the examination was made, the teacher was there, and we gave her a copy of the examination, and told her what abscessed teeth meant with these children, and asked her to cooperate with us, to get in touch with the parents and see that these conditions were corrected as far as possible. Not only that, the Health Education Department is doing a great deal of work on diet and the correction of physical defects. The nurses are reaching many homes and correcting faulty diet throughout the city of Denver. In regard to the

examinations of the rural districts in the high altitudes, it is true that the conditions are very bad. Leadville, out of 270 examined, shows 85 per cent of the children with dental defects, and over 30 per cent with abscessed teeth. Telluride and Silverton were not quite as bad. In the rural districts, Akron, which is in the eastern part of the state, and Bayfield, near Durango, show a very much better result. At Akron approximately 50 per cent without any dental defects, and a very small percentage with abscessed teeth. At Eagle, practically the same result, with only 1 or 2 per cent with abscessed teeth. Bayfield is approximately the same.

One of the most striking things to me in reference to the teeth is the following: Eagle and Gypsum are only eight miles apart in practically the same community. They have vegetables and milk in great quantities. At Eagle 50 per cent of the children had practically no decay, while at Gypsum practically 85 per cent of the children had dental defects. What is the answer? Same community with the same kind of food available. It seems that at Gypsum the doctor did not prescribe cow's milk and vegetables and mother's milk for the children. At Eagle apparently the doctors had talked to the mothers about some of these things. The majority of the children in Gypsum were bottle fed, Eagle Brand mostly, and were given little or no cow's milk, and vegetables. The result was that the teeth were poor in structure. Only 1 per cent of the children at Gypsum had abscessed teeth as compared to 30 per cent at Leadville. The teeth did not abscess—they simply washed away. There was no enough calcium and phosphorous in those foods to make a decent enamel. The entire crown of the tooth was dissolved and carried away when the caries took place, whereas in Leadville there possibly had been sufficient phosphorous and calcium salts in the diet to make a fairly good enamel, this was left standing and made a cup which retained the infected material in contact with the pulp, causing its death and the resulting abscess. That is most striking example I have noted in regard to diet with reference to the teeth. I examined a boy at the Children's Hospital several years ago, he was only three years old and had six abscessed teeth—all molars, and the anterior teeth had very little enamel laid down. I asked the mother what she had been giving the children, and she said, "Condensed milk, and very little vegetables." The child had been on that diet practically all his life, and it is no wonder that the teeth were in this condition.

Recently, at Bayfield, I examined three boys in the same family ranging from two to five years, and everyone of their teeth were in perfect condition; you could see they were healthy. I said to the mother, "I know what you are feeding these children; you are giving them fresh milk and vegetables." And she answered, "Yes, they drink milk like little pigs, and get all the fresh vegetables they want." Every tooth was just as solid as a diamond; you couldn't begin to scratch the surface. Another case, I noticed, was that of two hundred children which I examined at the Queen of Heaven Orphanage in Denver, and out of that number 50 per cent had perfect teeth, 25 per cent had only one cavity, making about 75 per cent with perfect teeth. I asked the sister of this institution what she had fed them, and she said, "Plenty of milk, whole wheat bread, vegetables, and no candy."

I think the question of dental caries resolves itself largely into a matter of diet. First, the diet

of the mother during pregnancy is important. If she will eat the proper food, foods which will give her phosphorous and calcium, it will not only insure her teeth from caries, but it will insure that first set of teeth in the baby, and make the baby's teeth good and strong. And then the diet of the children from birth: The mother's milk certainly is the best, or a modified cow's milk, according to the doctor's orders. Later on the children should be given food which will make them chew, also fresh vegetables and milk, and given the proper attention in all those things which relate to general hygiene. We are talking to the mothers and trying to get them to realize that if they will give their children proper food that the teeth will certainly be very much better. It may not, possibly, entirely eliminate caries. Many of the authorities on dental research admit that, but it will go a long ways toward doing it. I think that in the junior or senior year in high school we should teach the girls something about diet, and general hygiene. They are the future mothers. And the things that apply to general hygiene certainly apply to the building up of a good, strong set of teeth.

Dr. Forbes (Closing): From a public health standpoint, I was glad that Dr. Wenk mentioned the consolidated school. I believe that this institution grew up in Colorado. Colorado is particularly fitted for it on account of its large open spaces. The fine equipment in the consolidated schools compares very favorably with the large cities, but we find in these schools the highest incidence of malnutrition because of the fatigue and the long trip on the bus, and the absence of a warm noonday lunch.

The question of breast feeding and use of canned milk, in connection with dental caries, has been well brought out by Dr. McMenamy in his reference to the two towns eight miles apart in which the findings were entirely different, less than 10 per cent in one place of diseased teeth, and 75 to 80 per cent in the other town. This is largely due, as the dentists believe, to the absence of breast feeding, and to the lack of cow's milk and vegetables in the diet. Now, milk drinking, strangely, is not always prevalent in a dairy community. I remember visiting one dairy community in which a farmer remarked that, after selling his cream and giving the skim milk to his pigs, there wasn't enough milk for his children!

Cinematograph

A method is described for analyzing the motions of the heart from the films obtained with the roentgen cinematograph of Ruggles.

The skiocardiograms thus obtained give the following information:

The normal left auricle empties early in diastole and shows only very slight motion at auricular systole.

At the beginning of diastole the cephalic half of the normal left ventricular border may move mesad for as much as 2/15 of a second after the apex has begun its diastolic excursion.

The caudal 5 cm. of the normal right border moves in phase with the left ventricle. Only about 2 cm. of the cephalic part of the right border moves in phases with the auricle.—Chamberlin and Dock Radiology.

The Peruvian Congress has passed a law making it mandatory that shower baths be installed in all public school buildings in Peru.

VISCEROPTOSIS

FROST C. BUCHTEL, M.D.
DENVER, COLORADO

The transversalis fascia is the structure that gives strength to the abdominal wall¹. This same fascia in the pelvis² is the main support of the uterus, vagina, bladder¹ and rectum.⁶ This pelvic fascia is attached at the brim of the pelvis, passes downward and inward to the bladder, with which it is intimately connected, and to the vagina which it splits to enclose, uniting with the fascia from the opposite side, and is attached to the cervix uteri, where it helps to form the vaginal vault. This forms a strong sling which is the main support of the bladder, and the strongest of the uterine supports.⁶ It forms the floor³ of Douglas' cul-de-sac and limits its depth.⁷ In the foetus this cul-de-sac extends to the levators. At puberty the 2nd sacral² vertebra forms the lower limit. The top of the seminal vesicles³ in the male and the cervix uteri in the female correspond with this bony level. The integrity of this fascia is broken at various places for the passage of blood vessels and viscera. It is at these unprotected places in the fascia that hernia is apt to come⁸.

The large intestine, uterus and bladder lie upon the transversalis fascia and are covered by peritoneum just like the intra-abdominal vessels. In passing from the abdomen they necessarily pierce the transversalis fascia, thus constituting the usual requirements for a hernia⁸. Anatomically there are four hernial possibilities: (a) in front of the anterior wall of the rectum, (b) behind the posterior wall of the vagina, (c) in front of the anterior wall of the vagina, (d) behind the posterior wall of the urethra⁸.

If the foetal depth of the cul-de-sac persists, a congenital perineal hernia results. The acquired form ordinarily comes as a result of a tear of the pelvic fascia during parturition. The vagina is firmly fixed into the pelvic fascia; the cervix uteri is located just at that part of the pelvis where the vagina is fixed into this fascia. During labor when the cervix is fully dilated the pelvic fascia is often torn. This is especially true in long, difficult or instrumental deliv-

eries. The vagina is elastic, so most of the pelvic fascial tears are sub-mucous. After healing, a gap in the pelvic fascia remains through which various abdominal viscera may pass, as in any hernia. In other cases with no tear of the pelvic fascia the overstretching gives a relaxation with a final result very similar to the congenital type.

"There is an intimate functional relation between the pelvic blood vessels, especially the veins, and the musculofibrous structures of the pelvic peritoneum and basal pelvic ligaments."⁹ "This fibro-elastic suspensorium of Blaisdell¹⁰ and the perivascular tissue of Cameron are functionally inseparable and not only constitute a large part of the pelvic support but are indispensable in the control of a normal venous and lymphatic circulation."⁹

In 1804 a typical case of perineal hernia was illustrated by Sir Astley Cooper in his work on hernia.

The operation ordinarily done in the United States and called the Moschcowitz operation was described by Marion¹¹ in 1909, three years before Moschcowitz wrote his paper on "Prolapse of the Rectum."

Keyes¹² in 1915 says, "This Douglas' pouch elongation and deepening often forms the sac of a hernia which may contain sigmoid, small intestine or omentum." Jones¹³ paper is an excellent one. He says: "Clinically there are three distinct varieties of deep cul-de-sac: Congenital, in which the peritoneum lining the deep pelvis is smooth and closely adherent to the walls of the pelvis and to the rectum and vagina or bladder. There is absolutely nothing to indicate the depth of the normal cul-de-sac. This variety is found in the cases of prolapse of the rectum in males and virgins, and in prolapse of the uterus and vaginal hernia in virgins. In the second variety, acquired, the cul-de-sac is deep but does not appear so deep as in the first; the peritoneum is redundant and is not adherent to the pelvic walls, rectum and vagina, or bladder. This form is of frequent occurrence in multi-parae. The third va-

riety is rare; in these cases there is a small opening between the vagina and rectum reaching from a posterior cul-de-sac in normal position down to the levators, and usually causing a vaginal protrusion. The appearance of this variety would suggest a defect in the posterior portion of the pelvic fascia, through which the intestines had forced their way to the depth of the pelvis. The comparatively small opening with a distinct floor of the posterior cul-de-sac at its normal height suggests the protrusion through a small defect in the fascia, as pointed out by Moschcowitz, as the cause of the deep cul-de-sac, and is exactly analogous to the formation of an inguinal hernia."

Findley¹³, Frank¹⁴, Gilliam¹⁵, Pollock¹⁶, and Hartman¹⁷, have valuable articles. Williams¹⁸ mentions the prolapse of the small intestine in the enlarged cul-de-sac. He favors the Moschcowitz operation because it closes the hernial opening and restores the tension of the pelvic fascia by putting a reef in it just posterior to the cardinal ligaments.

Clark¹⁹ thinks Douglas' cul-de-sac is the chief propagating factor in prolapsus. He makes the point that a plastic operation on the vaginal outlet and suspension of the uterus leaves the chief intermediary part of the hernial tract, Douglas' pouch and the upper portion of the vagina still untouched. He says that it is quite obvious that to restore these cases to normal health, the hernia interposed between the rectum and the upper part of the vagina must be obliterated.

The Hendleys² advocate the operation of plicating the cul-de-sac of Douglas, and anchoring it to the posterior wall of the cervix, together with shortening of the uterosacral ligaments in cases with marked eversion of the vaginal walls associated with complete uterine prolapse.

Dr. George Gray Ward²¹ at the St. Louis meeting of the American Medical Association showed lantern slides well illustrating perineal hernia. He especially stressed the importance of closing the hernia in the Mayo operation for prolapse.

Culbertson²² uses the vaginal route in uncomplicated cases and the abdominal when

he has reason to suspect adhesions or other complications.

Heiman²³ reports a patient with a perineal hernia successfully operated upon by Dr. Sigmar Stark using the vaginal route. This was the sixth operation for this condition and the woman's eighth operation in all.

Dr. Louis E. Phaneuf²⁴ reported four successful operations at the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at the 1924 Cleveland meeting.

Two papers read at the American Surgical Association last year are interesting in that they are excellent examples of the two ideas, new and old, dealing with the treatment of uterine prolapse. The article by John Homans²⁵ is an able presentation of the correct mechanical principles underlying this condition. The article by Crile²⁶ shows a disregard of these basic principles. In the first article thirty-two patients are reported with cure in 73 per cent and improvement in an additional 13 per cent. The diagrams shown in this contribution are very enlightening and are typical of the condition. They are similar to the diagrams shown by Dr. Ward. The second article is a description of a secure and strong ventro-fixation which often leaves the woman a chronic invalid.

Graves²⁷ in his text-book of Gynecology has a discussion of perineal hernia and gives his own method of closing the defect. He sutures the lower bowel to the uterus and then suspends or fixes the uterus to the anterior abdominal wall. This procedure prevents the prolapse of the abdominal organs back of the vagina but fails to tighten the all-important pelvic fascia with the desired support from below. In his address²⁸ before the Inter-State Post Graduate Medical Assembly of North America at St. Paul last October dealing with "Familiar Problems in Gynecology," he called attention to the fact that in a prolapse case the injuries of the cervix and the perineum are, so far as the symptoms of the patient are concerned, the least important of the lesions. He says: "From the standpoint of disability of a patient suffering from general prolapse, first in importance is, descent of the uterus; sec-

ond, diastasis of the abdominal rectus muscles; third, prolapse of the anterior vaginal wall and bladder; fourth, relaxation of the perineum; and fifth, laceration of the cervix." He fails to mention the influence of perineal hernia, laceration or relaxation of the pelvic fascia in discussing descent of the uterus.

Dr. Charles S. Elder²⁹ in his excellent contribution on "Treatment of Uterine Displacements" read by title at the meeting of the Colorado State Medical Society, September 26, 1912, says: "When the ideal operation for retroversion has been devised it will be its purpose to restore the pelvic connective tissue to its pristine strength and dimensions." This article and the one he read in 1911³⁰ both show a correct appreciation of the underlying mechanical etiologic principles of prolapse. His diagrams in both articles are worthy of study. The various neurotic symptoms he so graphically describes are, of course, not due to any displacement of the uterus. They may, however, well be explained by a tear or relaxation of the pelvic fascia with a consequent prolapse of the bladder, rectum, cecum and small intestine, with a drag on the superior mesenteric vessels and a coincident physiologic disturbance of the pelvic circulation. When one considers how long ago these articles were written, it is with pride that we call attention to these contributions made in our State Society.

Dr. Bloodgood³¹ has a very suggestive discussion on "Chronic Dilatation of the Duodenum" this last May in the International Surgical Digest. He calls particular attention to a type of ptosis and dilatation of the right colon associated with chronic dilation of the duodenum. He says: "In many of the cases there were no adhesions and no peri-colitis. The huge giant cecum sagged into the pelvis. The mesentery of the first foot of the ileum near the cecum was either congenitally shortened or shortened due to chronic inflammation because of the continuous pull of the ptosed giant cecum. When the patient was standing and the cecum filled with fecal matter in the pelvis,

there would be a direct pull on the mesentery of the small intestine, and the mesenteric vessels, peritoneum and connective tissue would produce a definite kink, with complete or incomplete obstruction at the duodeno-jejunal junction. These patients when up and about would vomit duodenal contents, varying with the degree of constipation and the amount of food taken. Put to bed there would be rarely any residuum on gastric lavage. At operation, there was no difficulty in exposing to view the great dilatation of the duodenum, which was often not associated either with ptosis or dilatation of the stomach. One could pull on the cecum and see the result of this tension on the mesentery of the small intestine at the duodeno-jejunal junction. Lifting the cecum out of the pelvis relieved this tension. This chronic duodenal dilatation was not present in all cases of ptosis, giant cecum or pericolitis. When the right half of the colon was resected the symptoms were relieved." He has had at least ten such cases since 1911. They all have been recently restudied and the results rank with the best in this group.

Dr. Freeman³² reported at the 1919 meeting of the Western Surgical Association a series of such cases treated by cutting the muscle of Treitz and thus lowering the duodeno-jejunal angle. Ptosis is probably the exciting cause in some of the cases presenting this anomaly.

One of the outstanding contributions on this subject was presented here in Colorado Springs at the 1923 meeting of the Western Surgical Association by Dr. Quain³³. Following the ideas so convincingly promulgated by Waugh, he reported cases treated by a colopexy of the cecum and ascending colon with excellent end results. Waugh³⁵ emphasizes the fact that this operation is physiologic and constructive in type and enables the patient to retain the functions of the alimentary tract unimpaired by the action of gravity to which the biped is exposed. One hundred of his operations were in children, done as a definite prophylactic measure, to prevent the onset and full development of the dire secondary pathologic tissue degenerations.

I³⁴ reported in 1924 a series of cases of megaloduodenum treated by duodeno-jejuno-stomy. I have received since that time several reprints from authors who have quoted from my article, indicating the attention now being given this subject. While Bloodgood and others recognize the etiologic importance of a ptosed cecum in its relation to megaloduodenum and describe clearly the position of such an enlarged bowel in the pelvis, no mention is made of the importance of perineal hernia in this connection. It seems to me that the primary lesion in some of these patients is undoubtedly perineal hernia.

For the purpose of this report I have reviewed all the patients I have operated upon for ptosis of any of the abdominal viscera since January 1, 1920. In this six-year period two hundred and three such cases have been operated upon. There has been no mortality in this series or in any patient previous to the beginning of this report operated upon for perineal hernia. I report in this paper cases of perineal hernia associated with ptosed cecum and ascending colon, and megaloduodenum in which I regard the pelvic lesion not as coincidental but as basic. Furthermore we relieved many cases with symptoms of duodenal toxæmia that did not have a demonstrable lesion of the duodenum but did present a very large ptosed cecum where we did no operation to correct the ptosis other than a perineal hernia operation.

It seems reasonable to explain the findings in such cases on the assumption that duodenal stasis was corrected before permanent enlargement of the duodenum ensued. A five-hour barium residue in the duodenum was observed in certain of these individuals. Roentgenograms taken after operation have shown no residue. Gastro-intestinal symptoms frequently have been alleviated or cured by a perineal hernia operation in cases that previously had an appendectomy performed elsewhere without modifying their symptoms.

The findings at operation in such cases are quite constant. The cecum lies low in the pelvis back of the vagina. The cecum is large and many times found to be congested. Dilated veins are numerous throughout the

pelvis. The uterus lies low and often is congested. The ovaries and tubes are prolapsed back of the retroverted uterus. The ovaries are apt to be cystic. Not infrequently do we find adhesions of the sigmoid to the ovary, to the left broad ligament, to the omentum or to the lateral abdominal wall. In eight of our cases adhesions of the lower sigmoid giving symptoms of obstruction constituted the indication for operation. In several of these the preoperative diagnosis was: "Probable Tumor." In these eight cases a free omental graft was employed to prevent recurrence of symptoms. In many others with adhesions not so pronounced a plastic operation was deemed sufficient.

Twenty patients were operated upon for megaloduodenum, five men and fifteen women. Ptosis of the cecum and ascending colon with a constant drag on the superior mesenteric vessels was the apparent etiologic factor in five of these cases.

Two patients had a right nephroptosis unassociated with any other pathology. A nephropexy gave entire relief of all symptoms in both instances.

In five, nephropexy was done in conjunction with a right colopexy. The coloptosis in these cases was the cause of the nephroptosis.

The influence of the nephro-colic ligament in causing ptosis of the right kidney is stressed by Waugh³⁵. He also discusses the firm adhesions that bind the gallbladder to the hepatic flexure of the colon. I am sure I am very conservative when I state that I have observed such a band of adhesions in at least fifty patients when doing a cholecystectomy. I am convinced that chronic cholecystitis is often secondary to stasis occasioned by the drag of a ptosed ascending colon. Early operations, in childhood, fixing a ptosed ascending colon, before the development of a pseudo-mesentery, would obviate the necessity for operations later in life in which a useful organ is sacrificed. In like manner the danger of pathology in the right kidney would be greatly minimized by eliminating the drag on this organ.

Seven patients were improved as a result

of a right colopexy; four of these were entirely relieved of all symptoms.

In one case in addition to a perineorrhaphy and perineal hernia operation I did a Beyea operation and suspended the transverse colon. This patient was operated upon February 27, 1924, and the results have been excellent. I ascribe the benefit derived more to the general elevation of the abdominal contents resulting from the perineal hernia operation than to the reefing of the gastrophatic omentum.

All of the colopexys and five of the megalo duodenal cases also had a perineal hernia operation performed.

In one patient a Beyea operation for gastroptosis was done in conjunction with an appendectomy and cholecystectomy. This patient, operated upon December 10, 1924, still has some gastric retention, but she is improved and is well satisfied with the results of her operation.

There are one hundred and seventy-two pelvic cases in this series. In most of these some operation in addition to a perineal hernia operation was performed, but in the great majority this lesion was regarded as the chief cause of the symptoms. All the patients were women. Of the one hundred and seventy-two, thirty-eight were unmarried. Of the one hundred and thirty-four married women, fifty-four were nulliparous. Adding fifty-four to the thirty-eight unmarried women gives ninety-two, or 54 per cent, in whom childbirth was not a factor in the development of the hernia.

Many of the multiparous women gave a history that suggested that a congenital type of perineal hernia had been aggravated by childbirth. Such a preoperative diagnosis was many times confirmed at operation in finding a very deep cul-de-sac with nothing present to indicate its normal level, the peritoneum being smooth and closely adherent to the pelvic walls. The acquired type gives one of two pictures: the more frequent variety presents a cul-de-sac not so deep as in the congenital and with a redundant peritoneum. The second variety of the acquired type is not infrequently observed in which there is a small opening extending from the

cul-de-sac at its normal level down between the vagina and rectum.

The symptoms in the nulliparous woman are very well illustrated by the first patient in whom I made a correct preoperative diagnosis of this condition. This nineteen-year-old girl was operated upon February 2, 1917. Her menstrual history was essentially negative. Her chief complaint was pain in both sides. At first periodic with its maximum intensity two weeks after the beginning of her menstrual period, it had been getting worse for about two years, so that at the time of her examination it was constant. She complained of pain across the abdomen, in both sides, in the back and down the front of both thighs. When she stood or walked the pain was aggravated. She had no leucorrhoea and was not constipated. She weighed one hundred and twenty-five pounds. Her hemoglobin was 80 per cent. This young woman was a student in the University of Wyoming and had been compelled to discontinue her work on account of her inability to be on her feet much and because she could not sit down in the ordinary manner without great discomfort. When she came into the office she looked around and selected a couch where she could recline instead of sitting on a chair. She said she was comfortable only when lying down.

Physical examination was practically negative. One finger pelvic examination revealed a retroverted uterus. At operation a perineal hernia extending to the skin of the perineum was found and repaired. Convalescence was uneventful and she was able to return to college a month after operation with entire relief from all symptoms. A letter in my files written four months after the operation (June 4, 1917) said: "I'm getting so fat I'm sure I need some exercises. I have gained twenty pounds since I left the hospital and I am still gaining. One hundred and thirty-eight is about the stopping point, it seems to me. It won't hurt me to ride horse-back—will it—or dance?" This patient was married in May, 1918. She was examined July 18, 1919, with negative findings. She had a baby with her two months old and reported that she had felt fine all through her pregnancy. I have seen her a number of times since and know that she has remained in good health.

I have given this history in detail as it is typical of scores of others.

The gain in weight made by this patient is not unusual. The greatest gain made by any patient in this series was seventy-eight pounds. This woman wrote me rather caustic letters about it. I have seen a marked increase in weight after the repair of large inguinal hernias. The most remarkable instance of this kind occurred in a husband and wife—both of whom had large irreducible inguinal hernias. The husband gained forty pounds and his wife fifty pounds the first year after the operation.

I have in the hospital at this time (August 28, 1926), a woman who gave a characteristic history of the acquired type of perineal hernia. This woman was thirty-five years

of age and had five children. She was not of the neurotic type. Since the delivery of her first child she has never been entirely free from discomfort when on her feet much. She always felt better when pregnant, especially after the first three months. After her fourth delivery an appendectomy was done on account of gas and lower abdominal pain. Her symptoms remained the same after the operation. After her fifth baby was born she could hardly drag herself around to do her work, and when the baby was six months old she was operated upon, at which time the perineum was repaired and the uterus was fixed to the anterior abdominal wall. She was not helped by this operation. She said she was comfortable only when lying on her stomach. Seven months after her last operation she came to Denver and was operated upon ten days ago. Examination revealed a good perineum, but a marked bulging in the posterior vaginal wall above the tight outlet. Coughing and straining gave a decided impulse to the examining finger. A preoperative diagnosis of perineal hernia was made. At operation the uterus was found firmly fixed to the anterior abdominal wall. The peritoneum along the posterior portion of the broad ligament was tremendously thinned out in numerous places with dilated veins underneath. The ovaries dropped down below the cervix and were congested and contained several small cysts. The tubes had been removed. The small intestines lay in a perineal hernia behind the vagina. After pulling up the intestines one's fist could be passed between the rectum and vagina. The utero-sacral ligaments were widely separated and thinned out.

These have been our findings in most of the cases of the acquired type.

A patient operated upon June 5, 1924, gave a very similar history. She was the only case I have operated upon who was absolutely bedfast. She had had two previous operations: the first an appendectomy and the second a ventro-fixation. The last operation was performed a year before I saw her. She had been confined to her bed since that operation. The repair of a large and deep

perineal hernia restored this woman to a life of usefulness.

Less frequently do we find a small opening at the normal level of the pelvic diaphragm with a tunnel running down posterior to the vagina.

Unfortunately many of the patients in this series had been previously operated upon without any relief of their symptoms. The appendix was usually the first organ removed. When this operation failed, another operation would be performed at which time a cystic ovary was removed. Later the uterus and the remaining ovary were removed without any notice being taken of a deep perineal hernia.

The two cases of complete prolapse of the vaginal walls following hysterectomy have been operated upon successfully. The first patient was forty-eight years old. She was the mother of one child now twenty years of age. One year after the birth of her child she was operated upon for prolapse, in Omaha. This operation helped for a time but finally the condition recurred and the prolapse became complete. Six years ago she went to Rochester and was operated upon for her prolapse. A perineorrhaphy was done and an abdominal supra-vaginal hysterectomy performed. The prolapse soon returned and in addition she developed a ventral hernia through the incision. A year after this time she returned to Rochester and was reoperated upon by another surgeon. This was successful only for a very short time. She was urged by letter to return for another attempt but, while she had no word of criticism, she felt she preferred to try a different field. She came to Denver and was examined by Dr. F. C. Robb, who referred her to me for operation May 14, 1924. Her complaints were that the womb came clear out and that she had to push back the bladder before she could empty it. She had to wear a napkin on account of a bloody stain. Examination revealed a complete prolapse of the vaginal walls with a cervix so much irritated that it bled on the slightest pressure. The perineum gave no support.

The operation consisted in the vaginal removal of the cervix and a perineorrhaphy. A lower abdominal incision was made before doing the vaginal work and a loop of small intestine was separated from the cervical stump. A large perineal hernia was then repaired through the abdominal incision. This patient was personally examined April 27, 1925, and found to be perfectly well. She had an anatomic and symptomatic cure. She is one of the most grateful patients I have ever had. Her disability was all the more distressing because she was a very strong, robust woman with a tremendous amount of energy.

The second patient was fifty-four years of age. She had been married twenty-six years. She had never been pregnant. In Chicago in 1913 she had a supra-vaginal hysterectomy and removal of both tubes, ovaries and appendix. Her chief complaint was prolapse of the vagina. This prolapse had been getting worse for the last five years. At first the condition was ascribed to an ulcer of the bladder. Cystoscopic examination by a Chi-

cago specialist, however, failed to find any pathology in the bladder. He ordered certain exercises which aggravated the bladder disturbance. Her present complaint was frequent and painful urination and prolapse. The bladder and vaginal walls came out between her legs. For many months the foot of the bed was elevated fourteen inches. This gave her some relief at first, but for the last six weeks the condition had been almost unbearable. Examination: The vaginal walls, especially the anterior, protruded on straining. There was marked relaxation of the perineal outlet. The cervix was present and looked normal. The lower abdomen was pendulous. The patient had a good lower abdominal scar. This is a striking example of a complete prolapse in a nulliparous woman. Operation in this case consisted in a removal of the cervix through the vagina—a perineorrhaphy and a Moschcowitz perineal hernia operation by the abdominal route. The operation was successful in every way.

In going over my records for the last ten years I found that perineal hernia was present in considerably less than half the cases where a hysterectomy was performed. Whenever found it was repaired unless there was some contra-indication to the operation, such as pelvic infection or, as in one case, poor general condition of the patient. This patient had a large pedunculated fibroid prolapsed into a deep perineal hernia. Before the operation the fibroid had kept the abdominal contents from prolapsing behind the vagina. This patient was very fat and was such a poor operative risk that I felt it was unwise to keep her on the table any longer than was absolutely necessary. After the operation she was really more uncomfortable than before on account of the hernial symptoms.

I will cite two other cases well illustrating slow and incomplete recovery when a perineal hernia was not repaired:

The first was an unruptured ectopic pregnancy correctly diagnosed, including the diagnosis of a coincident perineal hernia. This woman went direct from my office to another physician who failed to confirm my findings. As his advice was more pleasing to her, she went a month before she finally called up asking to be admitted to the hospital. In the meantime she had lost blood several times in the pelvis. After the abdomen was opened old blood clots and fibrinous exudate filled the large cul-de-sac. I felt it was better judgment not to do any repair work on account of the danger of infection. This patient had an uneventful operative recovery. When she returned home, however, she found the old symptoms of discomfort and pain in the lower abdomen and back returned and she was unable to do her housework. She spent six months with her mother in the East and got on fairly well as long as she had no duties. She returned to her home in Denver and again had so much distress that she finally gave up her home and went to a boarding-house to live.

A second case was a hysterectomy for a large metritic uterus in a multiparous woman forty years of age. A deep perineal hernia was observed but was not repaired because at that particular time I decided I would not do any more operations of that kind as I knew of no one else in Denver who was doing them. This woman has never made a complete recovery. She had in addition to the hysterectomy a perineorrhaphy. She now has a good perineum but complains of great discomfort when on her feet much. After attending the next meeting of the American Medical Association in St. Louis and hearing Dr. Ward discuss such cases I came home fortified in my former position and have not weakened since. I later explained the whole situation to this patient but she would not consent to reoperation and has remained in poor health. On my return from St. Louis I had another patient as similar to this one as two patients can be. A complete operation was done in this case and she left Denver to spend the summer in Europe three weeks after her operation. She came for examination on account of discomfort when on her feet much. That summer she was able to spend in sight-seeing without any trouble of any kind.

The disturbance of circulation in the pelvis has been indicated in several of the cases by the finding of several ounces of straw-colored fluid in the pelvis. One patient had approximately half a pint of fluid. There was no indication of a tuberculous Salpingitis or tuberculous peritonitis in this case. She was operated upon March 11, 1925, and has been well since the operation.

Dyspareunia was the indication for operation in three brides of less than a week's duration. In each case there was a congenital perineal hernia containing the fundus of a low retroverted uterus. Operation gave perfectly satisfactory results in each case. One of these patients has had one miscarriage and one full-term child, since her operation. Several of the multiparous women complained of dyspareunia of from one to four years' duration.

Ptosis of the bladder from a tear or relaxation of the pelvic fascia is a real condition. The patients complain of a heaviness or burning sensation. Most of them have pain and frequency. Some have urgency and spasm. Urinalysis is essentially negative unless there is secondary pathology as a cystitis from residual urine. The nulliparous patients have bladder symptoms less frequently than the multiparous. They are ordinarily relieved by a perineal hernia operation. The woman who has borne children may be relieved by this operation alone;

she may require in addition a tightening up of the fascia anterior to the cervix.

Coccygodynia and the great train of symptoms caused by duodenal toxæmia, such as headache, nervous exhaustion and irritability are very apt to lead to a diagnosis of neurasthenia. Osler's description of the enteroptotic patient rather leaves one with the impression that the real malady is neurasthenia but that incidentally the patients have a ptosis of certain organs. Neurasthenia is not as popular a diagnosis now as it was when Osler wrote his Text Book.⁵⁶ Whenever one writes neurasthenia in the line left for diagnosis at the top of his history blank the word is apt to bring to one's mind unpleasant memories of some patient so diagnosed but finally operated upon for the removal of a spinal-cord tumor or exophthalmic goiter, or some other affection not properly understood at the time. Two of our own hopeless neurasthenics finally developed leukaemia—one an acute lymphatic leukaemia and the other a chronic spleno-myelogenous leukaemia.

Many of the patients in this series had been given no other diagnosis than that of neurasthenia.

In some of the patients presenting bladder symptoms I have done a vaginal operation to tighten the pelvic fascia under the bladder. In one of the worst cases I secured good results by doing the usual perineal hernia operation by the abdominal route and then separating the bladder as one would in doing a complete hysterectomy. The anterior cervical fascia was then cut and shortened with silk sutures. This patient had a painful and stormy bladder convalescence. She was in the hospital six weeks but her ultimate recovery was good.

As a whole the multiparous bladder cases gave the most unsatisfactory results because until about a year ago I did not appreciate the necessity of tightening the fascia underneath the bladder. Our recent results have been better in this type of cases since the adoption of this additional step in our operative procedure.

The worst bladder case in the whole series was entirely cured. This patient was oper-

ated upon July 22, 1919, at the request of Dr. T. L. Howard. I saw this patient after she had been admitted to the hospital and obtained her history there. During the time I was getting her history she sat on a slop jar in her room most of the time, passing a few drops of urine with such pain and agony that great drops of sweat stood out all over her face. The story she told me was a long and tragic one. She had undergone twelve operations for the relief of symptoms produced by enteroptosis. The enumeration of her operations reads like a course in operative surgery of the abdomen: appendectomy, cholecystectomy, removal of one tube and ovary, removal of the other tube and ovary, ventro-fixation, right nephropexy, left nephropexy, some operation to elevate the stomach, gastro-enterostomy and finally three operations for adhesions. This woman was, of course, a wreck physically and nervously and her morale was very low. Dr. Howard drained the bladder for temporary relief and I did a Moschcowitz perineal hernia operation and removed the uterus. The uterus had been split in the ventro-fixation operation and each half had been attached to the anterior abdominal wall. The continued traction had pulled the tissue out into two cords that held the bladder as in a hammock. Her operative recovery was uneventful and she has had complete and permanent relief from all her very distressing symptoms. This woman never goes through Denver without stopping to express her gratitude.

Of the one hundred and seventy-two pelvic cases here reported, one hundred and fifty-six were operated upon by abdominal incision and sixteen by the vaginal route. The sixteen cases in the latter group all had a vaginal hysterectomy with a typical Mayo operation for complete prolapse of the uterus plus a removal in some, or closure in most, of the peritoneal pouch extending down behind the vagina. I am convinced that the patients whom I have operated upon in this way have had better results than those formerly operated upon without removing or obliterating this peritoneal pouch.

The symptoms and physical signs of peri-

neal hernia are fairly well exemplified by the above case reports. They are often modified by secondary pathology in the various organs directly and indirectly affected. Pain is the symptom that most usually is responsible for the patient's seeking medical advice. Most of the patients complain of a general lower abdominal discomfort aggravated by being on the feet. The pain may run down the thigh and is often accompanied by back-ache. A "bearing down feeling" was the term often used to describe the discomfort. Coccygodynia is often caused by a perineal hernia when the rectum is involved in the prolapse. At times the pain is located more on the right side, leading to an erroneous diagnosis of chronic appendicitis. The association of a certain amount of indigestion from enteroptosis, coloptosis or mobile cecum is apt to give the physician much assurance in the correctness of this diagnosis. If duodenal toxæmia or megalo-duodenum is present, symptoms similar to those of peptic ulcer or chronic cholecystitis render a differential diagnosis from these affections difficult to make. Dysmenorrhœa is a frequent complaint. The uterus may be retro-verted or anteflexed. In both instances descent is present. Congestion of the ovaries with cystic degeneration often accounts for changes in the menstrual history. A considerable number of these patients had scanty menstruation. Pelvic varicocele is a very constant finding in the large perineal hernias and partly accounts for the feeling of weight and heaviness of which the patients complain. One young woman had a very marked swelling of the feet and lower legs from the disturbed pelvic circulation which was entirely relieved by the operation. Constipation is often a symptom not only in the coloptosis cases but also in the patients with perineal hernia. The support afforded the lower bowel by operation often relieved constipation. Sterility was the indication for operation in some and a number of these women later bore children.

The physical signs in the perineal hernia cases are those of a deep cul-de-sac. Vaginal examination reveals a lack of resistance in the posterior vaginal wall. The posterior

wall can be pushed backwards easily as though into a cavity, without the resistance ordinarily encountered. Straining or coughing is accompanied by an impulse that can be appreciated by the finger in the vagina when the cecum or especially when the small intestine is prolapsed into the perineal hernia. The cecum can at times be displaced and later, on straining, can be felt to resume its former location in the ptosed position. Patients with a complete prolapse of the uterus all have a perineal hernia. Cognizance of this fact makes the diagnosis in such patients easy and certain. Roentgenograms are necessary in making a correct diagnosis in the megalo-duodenal cases and in the cases with ptosis of the right colon. To show the maximum excursion of the ascending colon a horizontal exposure should be taken after forced expiration and a vertical exposure after forced inspiration. The results obtained in this manner are conclusive. Ptosis of the stomach and transverse colon are shown much better in the skiagrams taken with the patient standing. Such films also often show the cecum or the small intestine lying back of the vagina at a lower level than would be possible in a cul-de-sac of normal level. A knowledge of the condition is the chief diagnostic requisite. "One sees only what is behind his eyes." The anamnesis is very suggestive. I am in the habit of saying that the history is almost as characteristic as that of peptic ulcer.

The treatment of visceroptosis depends on many things. It may be orthopedic following the ideas of Dr. Goldthwait. It may be purely mechanical or mechanical combined with various exercises. The treatment may be operative and the operation indicated naturally depends on the particular type of ptosis found to exist. It is possible to have a ptosis of a single kidney unassociated with any other displacement. When surgery is indicated for this condition the operative procedure is much simpler than when nephroptosis is dependent upon the traction of a ptosed ascending colon through the nephro-colic ligament. Megalo-duodenum may require for its correction merely a cutting of duodenal bands or a lowering of the duodeno-

jejunal angle by a plastic operation, or a right colopexy or occasionally a duodeno-jejunosomy or colectomy. Moderate degrees of this condition may be relieved by a perineal hernia operation. The latter operation associated with one of the former is often attended by better end results than when disregarded in the therapeutic attack. The various operations for gastropexy and for a low transverse colon are attended by better results if appropriate consideration is given to the whole mechanical problem, including diastasis of the abdominal recti muscles and to perineal hernia. A proper fixation of a ptosed ascending colon is an operation that is indicated to correct many symptoms due directly to this condition and also on account of symptoms caused by its drag on other structures such as the kidney, gall bladder, pylorus, duodenum and on the superior mesenteric vessels. When the operation is done in childhood secondary tissue degenerations are prevented and operations in later life attended by the sacrifice of useful organs are obviated.

A proper repair of a perineal hernia raises the general level of the abdominal cavity and thus helps to relieve the abdominal symptoms of visceroptosis in exactly the same manner as such symptoms are temporarily entirely relieved by the enlarging uterus during pregnancy.

The gynecologic indications for a perineal hernia operation are to re-establish the strength and integrity of the pelvic fascia thereby giving proper support to the bladder, uterus, vagina and rectum. When this is done no other operation is indicated or required for retro-displacements of the uterus. The insertion of a Baldwin tube in addition to a perineal hernia operation gives relief in a very high percentage of the cases of antelexion.

Patients operated upon before the onset of secondary tissue degenerations are ordinarily entirely relieved by a perineal hernia operation. Those operated upon late are benefited in direct ratio to the amount of secondary pathology in the organs affected.

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DISCUSSION

Dr. Leonard Freeman: Dr. Buchtel has given a careful and intelligent consideration to his subject, as he always does, and therefore he has written a good paper. If I presume to disagree with his paper to a considerable extent, I am sure he will forgive me. I think it is well to present two sides to the question whenever anything savoring of newness is brought before the Society for consideration.

Now, as I gather from his paper, he wishes us to believe that enteroptosis, to a large extent, is produced by the pull upon the intestines and other organs, either directly or indirectly, by their getting into a deep perineal culdesac. He wishes to prove this by saying that such culdesacs are frequently seen in enteroptosis, that the intestines are found in them, and that the results obtained by him, in his formidable array of operations, justify his conclusions.

Suppose we consider this question for a few minutes:

In the first place, such deep culdesacs are confined to women almost exclusively (all of his reported cases are in women). How would you account, then, for the cases of enteroptosis that occur in men almost as frequently as in women, at least with those organs that men possess?

In the next place, how would you account for enteroptosis of the liver, stomach, spleen or kidney? He does speak of enteroptosis of the kidney, and endeavors to account for it by the supposed fact that the cecum gets down into a very deep culdesac and pulls upon the ascending colon, and that, in turn, pulls upon the kidney through the nephrocolic ligament. The argument sounds well, but it is scarcely borne out by the facts. In cases of ptosis of the kidney, the ptosis occurs long before the cecum gets down into the culdesac; and I think most surgeons will agree with me that in cases of ptosis of the kidney they have seldom, if ever, found the cecum as far down in the culdesac as Dr. Buchtel would have us believe.

In the next place, surgeons have not frequently found the culdesac as deep as Dr. Buchtel speaks of. In fact, it is seldom that I have found such deep culdesacs, and I have given the subject some attention in operating.

Again, it is difficult to believe that enough intestine can get into even a deep culdesac to cause sufficient pull to produce an enteroptosis, or that the slight elevation given to the abdominal contents of the closure of the snub would amount to much, even if it were permanent, which is doubtful. We find hernias very much larger than such culdesacs, and yet it is by no means necessary that enteroptosis exists with these hernias.

I prefer to believe, with Bier, Payr, and other investigators, that enteroptosis depends upon a congenitally weak connective-tissue system—weak in connective-tissue fibers and weak in elastic fibers—and that this is associated with an insufficiency, as it were, of the vegetative nervous system, the whole thing forming a very definite picture of a congenital constitutional weakness. The enteroptosis does not produce these conditions in the vegetative nervous system and in the connective tissue system; but these conditions produce the enteroptosis—produce the relaxation

of the ligaments, and fibrous tissues which hold the internal organs in place. They also produce a relaxed abdomen, resulting in the so-called "pot belly," and also tend to produce a relaxed pelvic floor and a deep culdesac. In other words, I choose to think that Dr. Buchtel in his enthusiasm for his subject, has rather gotten the cart before the horse.

However, the proof of the pudding lies in the eating. If Dr. Buchtel can cure a large proportion of his cases by "elevating the floor of the abdominal cavity," through obliteration of this "perineal pouch," he will have gone a long way toward proving the value of his theory. But before we can accept the evidence of his formidable array of cures, there are a number of considerations necessary:

For instance, the "cured" cases which Dr. Buchtel presents to us, will have to be gone over extremely carefully and checked up; not a few weeks afterwards, or a few months, but several years afterwards. In every operation for enteroptosis which has been introduced in the past, a very formidable array of cures has been brought forward, and yet these operations in the course of time have been shown to be ineffectual. In fact, if enteroptosis is due to a constitutional weakness, you cannot cure it permanently by an operation. In other words, you "cannot make a silk purse out of a sow's ear."

Then, again, one must take into consideration what other things Dr. Buchtel may have done in these operations, which favored a cure. For instance, in one case that he mentions, and which he designates as a "prize case," he liberated from an adhesion with the stump of the cervix, a loop of the small intestine. This procedure, in itself, would be enough to cause amelioration of many symptoms. The removal of a chronic appendix, and the doing of various things, with ovaries, tubes and other organs, might readily cause improvement.

And then, again, we have to consider the mental effects of an operation. These patients are neurotic patients, a great many largely hysterical, owing to the instability of their nervous systems. What we say to them following an operation—and Dr. Buchtel has a way of saying things pretty forcibly—would have something to do with at least their temporary improvement.

And, again, we have to consider the rest in bed, which with these patients is often a long one.

And we also have to consider the wearing after the operation of an abdominal corset, which supports the abdomen and tends to relieve the symptoms of enteroptosis.

We have to consider in this whole subject one general truth—that an enteroptosis, in itself, does not mean much. Simply because an organ is down, amounts to but little. An enteroptosis becomes important only when the organs do not function properly. This was wonderfully well illustrated recently, in California, when a large number of healthy students were examined in one of the universities. Approximately 50 per cent of these students showed a gastropptosis; and it was significant that some of the healthiest of the lot had the worst dropping of the stomach.

Now, without attempting to say that a deep culdesac is not of importance in certain cases, I do wish to take the stand that it is not as important as Dr. Buchtel would have us believe in his interesting paper. And when these cases do occur, they are mostly confined to the female pelvic organs, such as the rectum, the bladder and the uterus.

Dr. Buchtel regards as another proof of his theory the fact that a pregnant uterus produces an amelioration of symptoms in cases of enteroptosis; but we cannot make such a comparison. Think of the large size of the pregnant uterus and the great elevation it gives to the abdominal contents; and then think of the small size of a perineal pouch and the slight elevation that it gives to the abdominal contents when the pouch is obliterated!

I wish to compliment Dr. Buchtel upon this paper. It makes us think, and that is what we want. Papers like this, in which are mentioned individual cases and ideas, are important. Whether he is entirely correct or not is of small importance; the paper is the thing.

Dr. Small, Texas: I have not arisen to discuss the paper, but to discuss Dr. Freeman's talk, particularly his statement that all the operations devised for the correction of intestinal displacements due to embryological errors in the development of the alimentary canal have been proven failures. Dr. Freeman stands very high in Texas, as do many of Colorado's brilliant men of the medical profession. It is fortunate that we have well trained men with large experience to put on the soft pedal, particularly in new fields, and call us back to lines of conservatism; but I feel that Dr. Freeman is too sweeping in his statement that nothing that has been done for enteroptosis and the correction of visceral displacements has been a surgical success. To use a figure of speech, it strikes me that Dr. Freeman's attitude might be illustrated as one who stops when the traffic light is red and then refuses to advance when it changes to blue. When the red signal is on there is but one thing to do—stop; but when the bell rings and the signal changes to blue let us advance.

Much has appeared in the literature and has been tested by some of our ablest men, both in this country and abroad, proving that successful methods have been devised, particularly in the last decade, for the correction and relief of certain intestinal malformations, some of which are as definite deformities as cleft palates or congenital club feet. It may be a slight digression to illustrate my point with a right coloptotic, one whose colon failed to fuse with the posterior abdominal wall in embryo as it completed its last lapse in rotation, thus allowing the gut to swing low in the pelvis. Such a colon, instead of having a base with lateral dimensions, as 80 per cent have, lies suspended by a linear attachment to the root of the mesentery and to the second stage of the duodenum. This condition, on account of certain anatomical relationships, may sooner or later produce symptoms; and such a condition when producing symptoms has a surgical significance.

Have I indexed myself? I have been indexing myself for the last two decades, and I have no apology for the position I take. The finding that 50 per cent of the young men in California who were x-rayed were without symptoms is not out of line with the observations of our best investigators; and the explanation is in the fact that many of this type go through life without symptoms. Those are the ones whose compensation does not break; while of the other 50 per cent, 10 per cent will show a break in compensation early in life. This is the type whose condition has a surgical significance, and who is entitled to the consideration of all abdominal surgeons. It is the type wearing the stamp "neurasthenia," placed upon them by our average internist, some of them saying they should be given a syringe

and allowed to go off and die.

I am not going to tell you how many of them I have cured. I am not here to boast. My responsibility while in Colorado Springs is too great for any personal reference. I am sent to you by one of the most beautifully trained scientists in all the South and Southwest, our president, Dr. Wm. Keiller, of Galveston; and I must account for my stewardship and not show signs as one departed too far from the beaten paths.

While I am not familiar with the interpretations of the essayist, visceroptosis and its varying stigmata is a subject in which I have been keenly interested for years. In my estimation there are but two divisions of the subject, enteroptosis: one, general visceroptosis; and the other right coloptosis. A general visceroptotic will always have right coloptosis; while a right coloptotic may never have general visceroptosis. The one condition is never surgical; the other is essentially surgical. If I do not say anything else worth while in your midst, I hope this word of advice to the general surgeon may be worth my trip to Colorado: Do not operate on a general visceroptotic with the expectation of improving the symptoms due to ptosis.

T. Howard, Denver: I am going to talk on this subject from a Urologist's standpoint, and I am not going to mention loose kidneys; but I want to mention loose bladders. Every Urologist knows there is a certain percent of women who have frequency and painful urination, and for which we cannot apparently find a cause. It has been my experience that these women have as much frequency and pain at night as they do in the day, yet they have practically nothing you can find from a pathological standpoint in their bladders. I have cystoscoped these women, and when the bladder would start to fill they would cry with the same pain that they apparently had when it filled with urine, and yet you could only find a few white, or red blood cells. You could catheterize their ureters; you could make functional tests on their kidneys and find nothing abnormal, yet those patients suffered, and they suffered excruciatingly. You might call them neurotics, and I think that the longer we live we are going to find that these so-called neurotics have real trouble, and that we are not making a proper diagnosis. This patient that had so many operations I think I referred to Dr. Buchtel. She came in along about 1918. She had been, as she said, everywhere. I know that she had been to Rochester twice, and there had a most thorough examination, including guinea pig inoculation for T. B. She heard of some one in Roanoke, Virginia, and went there. She was cystoscoped in Chicago many times. Every time I cystoscoped her I had to give an anesthetic, and yet I could find nothing wrong. I have seen her crawl on her abdomen to the slop-jar, trying every fifteen minutes to void. The only thing I ever found was apparently a thickening of the bladder wall. Even under the deepest gas anesthesia, when you filled her bladder, she resisted as if in pain. I have seen in the last few years twenty-five to fifty women who had, in a minor degree, symptoms like this woman, in whom you could find nothing pathologically wrong, but every one of these cases that was operated on had what is called a perineal hernia, and every one got well when the perineal hernia was fixed. Whether there is anything in perineal hernia from the general surgical standpoint, or not, I do not know, but I do know that bladders which have frequent and painful urination and could not be cured with any other treatment were

cured if their perineal hernias were repaired. I have seen patients that had these conditions operated on by surgeons. I have tried to explain to the surgeon that the patient had a perineal hernia, for when I would look down in the pelvis when the peritoneal cavity was opened I could see down to the rectal sphincter in some of them. These patients would have a fixation of the uterus, and would come back in two or three months with the same symptoms for which they had been operated, and yet I could not convince the surgeon that there was something there that was not supporting the bladder. I know that from the urologist's standpoint it explains certain symptoms and cures in these bladder cases. I do not care what others may say, I have proved it to my own satisfaction. I never saw but one probable case in a man. Of course, there was no way of proving that he had it, for he was never operated. I want to go on record as saying that there are a certain amount of urological cases that can not be cured if they have this so-called perineal hernia, and do not have it repaired.

O. S. Fowler, Denver: This discussion is getting somewhat like the argument mentioned between the Fundamentalists and the Modernists. One says, "There ain't no hell," and the other replies, "The hell there ain't."

I think some of the discussion of the paper as read is far from the primary point of the paper itself. If I understand Dr. Small correctly, he is leading us away from the depth of the pelvic cavity, and the effect of this general visceroptosis to right coloptosis. Now, coloptosis has nothing to do with the depth of the cavity, or the depth of the cavity with right coloptosis; and on the other hand, would like to ask him what flag he is going to put up when he says, "Do not ever operate in cases of visceroptosis." The whole question in my mind seems to hinge upon the depth, the total depth of the abdominal cavity from the diaphragm to the perineum. Now, when we are taking up the discussion of the bladder prolapse alone, we are not dealing with visceroptosis, or the operation for perineal hernia in relation to visceroptosis. It depends entirely on the pelvic condition, with which we have been more or less familiar for a good many years. We have had nothing to say about visceroptosis in relation to prolapsed bladders. I am sorry that Dr. Buchtel has not divided his cases into those that have had perineal lacerations with distinct herniation of the bladder, vaginal wall and the rectum. It is true these are herniae; there is no question about that, and they can be regarded as such; but as to the effect of this operation, or this condition, being found in nullipara (and in man—and man should not be left out)—opens up a different question entirely from the discussion of perineal prolapse in the multipara. As to the bringing up of the bladder that Dr. Howard mentioned, it is perfectly true that those bladder symptoms are ordinarily and usually relieved by the correction of that prolapse of the bladder wall. Dr. Buchtel did not tell us just how he performed this operation in addition to the regular operation of perineorrhaphy. In perineorrhaphy it is true we bring up the posterior part of the pelvis; we shorten it perhaps as much as an inch or two inches. He spoke of bringing the rectum over and attaching to the uterus. Now, that probably would help prevent retroversion of the uterus, and undoubtedly keeping the uterus in anteverted position would help the patient. The depth of the bony pelvis in men and in women, and those limited by the natural arrangement of the perineal fascia

and the pelvic fascia, varies to some extent. Just what figures it represents, I cannot give at this time, but undoubtedly pelvis vary as much as an inch or more in their normal depths. You can often find when you are in the abdomen and look down in the pelvis, that it seems to be an inch or two deeper than normal. The whole question in relation to Dr. Buchtel's paper, as I get it, is not the correction of the pelvic organs themselves so much, as it is with the importance in relation to visceroptosis. Now, if the correction, the lessening of an inch or an inch and a half or two inches in the total depth of the abdominal cavity is beneficial is important, we can expect some result from the operation of so-called perineal hernia. But it does not appeal to me that the support that was given in the perineal hernia operation, alone supports that we regularly give in perineorrhaphy, is going to be sufficient to keep those people well. A peritoneum always lengthens out again when pressure is brought upon it. You have all seen the off fixation of the uterus, where the peritoneum was used. So that a peritoneal tissue used to support the abdominal organs across, to make a diaphragm across the pelvis, so to speak, to my mind is clear away from the principles that nature has given us.

G. Heusinkveld, Denver: From the gynecologist's standpoint, this question that Dr. Buchtel has raised means a great deal. You all know, a great number of operations have been devised to hold up the uterus, the Alexander operation, the Gillian and legions of others. In most of these conditions the uterus is back out of place, not only rolled back of itself, but actually down on the Levator muscles. In these cases you will find when you pick the uterus up there is a hole you can stick in a fist as big as mine. These cases, after the hernia pouches are repaired—I have done a few after Dr. Buchtel called my attention to them—the posterior part of the abdomen or pelvis was brought up showing the uterus right in place, the bladder placed in normal position, and the patient gets comfortable. In the cases where there is chronic pelvic congestion, where the veins feel like a group of angle worms, bring the cul-de-sac up, and those veins disappear and excision or ligation becomes unnecessary. I fixed up one some time ago, and the main complaint was the varicose veins down the thighs—Dr. Buchtel mentioned one case where swelling of the legs was one of the presenting symptoms. I am convinced that many of our gynecologic problems where we have more or less unsatisfactory operations for retroversions of the uterus, can be handled more successfully in the way Dr. Buchtel proposed.

W. H. Halley, Denver: With the larger question of the relation of perineal hernia to ptosis of the abdominal viscera, I have had no experience. But if a defect below will allow the intestinal mass to sag, and put a continuous, even if slight, pull on the mesenteric root, then the symptoms of discomfort and heaviness, and their relief by lying down, can be understood. Experimental surgery and abdominal operations under local anaesthesia have demonstrated that we may do almost anything in the abdominal cavity except pull on the mesenteric root. The old conception of perineal hernia, or the one that I have always had, was that the cul-de-sac of Douglas should go so far down that its lowest extremity almost touched the perineal skin. Obviously this is incorrect. An inguinal hernia does not have to extend into the scrotum to be an inguinal hernia, and waiting for a large perineal hernia to develop is analagous

to waiting for cavitation before diagnosing pulmonary tuberculosis. It should be noted that all perineal hernias do not give symptoms. We see patients who upon straining can roll the vaginal mucosa out of the vagina, they give the impulse on coughing, but have no symptoms. Even when asked leading questions they deny having discomfort or pain when long upon their feet. I have had no experience with the congenital variety of perineal hernia. My cases have been of the acquired type, aggravated by or caused by, child birth. In the repair of these defects the principle involved, so far as the pelvis is concerned, is that of substituting support from below for suspension from above. And all round ligament operations are suspensions from above, no matter what the technique. While the repair of structures inserted into the utero-cervical junction, that is the pubo-cervical fascia, the cardinal and utero-sacral ligaments, I conceive to be support from below. It has long been taught that the first essential in treating pelvic relaxation surgically is repair of the perineum, and of the cystocele if one be present. It is a requisite of pelvic anatomy that the cervix should be high. The position of the utero-cervical junction is an important land mark. Dr. Hertbler use to separate out the bases of the broad ligaments and overlap them in front of the cervix to obtain a high and backward position. This is just what the perineal hernia operation does. Before I became familiar with Dr. Buchtel's work, I had reached the conclusion that the external Alexander gave quite as good results as any of the more complicated procedures. When it was necessary to open the abdomen then plicating the round ligaments and shortening the utero-sacrals was done. It was just a step forward to do the perineal hernia operation and disregard the round ligaments all together. Dr. Buchtel tells me that no dystocia in labor has resulted in any of his cases, due to the operation.

Although more than one-half of Dr. Buchtel's patients were nulliparous women, yet the paper emphasizes in a very direct way the value of the after care of the obstetric patient. Perineal tears are usually well repaired. But the tone of the abdominal and perineal muscles should be restored by exercise and massage, and the uterus should be kept mobile even if it is low. Given a case of congenital perineal hernia, it is conceivable that it could be maintained symptomless. While the operation is not technically difficult, it is technically troublesome. There are three requisites; first, a large enough incision; second, the Trendelenburg position; third, an assistant who knows what you are trying to do. I would like to emphasize one sentence in Dr. Buchtel's paper. He says, in effect, that where this operation is done no other procedure is necessary in retroversions. Of course it is understood that the pelvic repair must be made. At the present time, I believe this to be true. frequently overlooked lesion in the abdomen.

W. S. Craghead, Pueblo: I would like to ask Dr. Buchtel why, after an operation for enteroptosis, a patient always gains in weight? He makes a positive statement that they do, and as far as I know, this is true.

It is also true in practically all successful abdominal operations, which I presume might be of a nature to interfere with metabolism, but this could not be true in an uncomplicated enteroptosis, or in the minor external operations, local infections, furunculosis etc., where patients have often been observed to gain in weight.

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Dr. Buchtel: (in closing): I am gratified over the discussion my paper has stimulated. It is difficult to present the symptoms, the physical signs, the results of after-treatment in over two hundred patients in a fifteen-minute period. So far as the gynecologic indications of perineal hernia operations are concerned, that has been written about so many times that you are all familiar with it, or you should be. How often a perineal hernia is repaired at the time of a hysterectomy, is an entirely different question. I have seen hysterectomies done by a good many different operators and it is my observation that this step in the technique of a hysterectomy has not been adopted by our leading surgeons. That they sometimes get in trouble as a result of not fixing the perineal hernia, I have indicated by citing cases with complete prolapse of the vaginal walls following hysterectomy. I do not know that I am especially enthusiastic about this operation. I have come at it not from the standpoint of the gynecologist, but from the standpoint of one who is more interested in upper abdominal surgery. If I could demonstrate to you in the operating room a few of these cases, I could make my points very much more clear than I can in this room. For instance, a patient operated upon day before yesterday was a woman who had very profound nervous symptoms. The x-ray pictures showed that her cecum was behind the vagina. At the time of operation she had a perineal hernia of the acquired type that contained the cecum. One could easily place his fist back of the vagina after the cecum had been elevated from the deep cul-de-sac. By lifting the cecum, one could see immediately that the tension of a contracting band that came across the second portion of the duodenum was immediately relieved. The first part of the duodenum was as large as the stomach. A demonstration of a few cases of this kind would make my point very much clearer than I can make it in any paper. There is an apparent association of a culdesac of abnormal depth, and upper abdominal symptoms. On many occasions I have seen bands that ran from the hepatic flexure of the colon to the gall bladder. It is reasonable to suppose that a certain number of cases of cholecystitis are caused by stasis from the traction of these bands.

What Dr. Freeman says about fixing other abdominal lesions at the time, is absolutely well taken; and I tried to make the point, that in practically every case something was done in addition to a perineal hernia operation. The addition of this operation, however, has seemed to me to give better results than when disregarded in the whole therapeutic attack. The responsibility that one assumes in removing an acute appendix is not so great as the responsibility assumed in operating upon a patient who has had chronic symptoms for a long time. In the first case, one should do just one thing, and he should do that as quickly as possible. In the chronic case, it is the most painstaking attention to every detail in the operation that makes the difference between success and failure. We all see patients that have been operated upon and re-operated upon without getting any kind of benefit in their symptoms. Many of these failures are due to things we could avoid, like the rough handling of organs and not recognizing certain lesions like perineal hernias.

One is tremendously influenced by his personal experience. My own results with perineal hernia operations have been favorable. The percentage of cures has been as high as that obtained after operation for any chronic abdominal difficulty.

I am convinced that perineal hernia is the most

HEALTH CONDITIONS ON THE ISTHMUS OF PANAMA*

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Since the discovery of Pasteur about sixty years ago there have been many brilliant illustrations of the practical application of sanitary science toward the conservation of community health. In this organized health work the United States has easily taken the lead. It is safe to state, however, that, considering its past history, the extraordinary surrounding circumstances, and the unusual difficulties to be overcome, that adventure in public health accomplished on the Isthmus of Panama during the past twenty-five years is most unique and unsurpassed. To regenerate a tropical swamp covered with almost impenetrable, ever growing, rank vegetation; drenched constantly with torrential rains; wilted with enervating heat and plagued with myriads of disease bearing insects, is an accomplishment highly worthy of the prowess and power of our great country.

In Panama, after nearly five centuries of pestilence and death, during which life was possible but never safe, there has been builded a new domain that is rapidly becoming known as a health resort, annually sought by hundreds of tourists seeking to evade the rigors of a northern winter and anxious to observe at first hand the magnificent transformation that has been wrought by effective organization and efficiently applied public health measures. Perhaps many of you have already visited this little gem of a country, separating the two great oceans and joining the western continents, but if you have not, there is in store for you a demonstration of practical sanitation and wholesale disease control, no greater than which has been accomplished in the history of the world.

For years the Isthmus had been dead to commerce, shunned by travelers and abandoned to the mestizos and negroes living there until in 1849, stimulated by the gold discovery in California, a trans-Isthmus rail-

way was commenced. So terrible was the mortality during the construction of this project that it has been described by saying that for each tie placed in the road bed a laborer's life was lost. Then the age-long dream of navigators was taken in hand by Ferdinand de Lesseps in January of 1881. The failure of the French Canal Company is a tragedy unequalled in history from the standpoint of finance and even more so in the ravages of tropical diseases. During the eight years of the French attempt, yellow fever, dysentery, typhus and malaria carried off nearly twenty thousand employees. The mortality frequently arose above 100, occasionally to 130 and 140, and in September, 1884, it reached the appalling figure of 177 per thousand working people.

When the American forces arrived in Panama to commence the canal, fifteen years after the French had abandoned it, these conditions had not improved and the health situation was indescribable. Had the French sick rate prevailed after the Americans began work, we should have had about 13,000 men constantly in the hospital and would have lost about 4,000 employees during each year. Since ten years were required to build the canal, this would have meant the sacrifice of 40,000 people and is equivalent to saying that the canal would never have been constructed.

This, then, was the colossal task that faced the American forces upon their assumption of control of Panama in 1904. It was their objective to convert Panama into a healthy region; to reduce the death rate from the appalling ratio of the old, unhealthy regime to that of a healthy community; of initiating such sanitary measures as would permit the citizens to reside in Panama in comfort and without danger to themselves and families. The completely successful manner in which this program and the new public health for Panama was accomplished is now a matter of history, and today, twenty-two years later, so excellent are health conditions there that one may live in the republic with equal

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assurance of being as safe from communicable diseases as if living in Colorado Springs or Denver. No longer is the description "The White Man's Grave" applicable to Panama, but it is fast becoming a popular pleasure resort as well as a gigantic filter for the removal of disease from the circulation of maritime commerce. Instead of proving a source of danger to the Orient, as was predicted in 1914, by facilitating the dissemination of communicable tropical diseases, it is now a great and effective sanitary outpost protecting the world against other infected ports.

The first year, after the arrival of the Americans on the isthmus, was devoted to organization of a health department and preliminary surveys of the sanitation problem. Scarcely had they begun work when a few cases of yellow fever occurred and a rather serious epidemic took place in 1905. This created a panic, and only the lack of steamship accommodations prevented the flight of the entire force from the isthmus. In 1906 one case was diagnosed as yellow fever in Colon, but as to its true nature there has been much doubt. With this possible exception, not a single case of yellow fever has originated on the isthmus since 1905. If one were to be imported now, *Aedes Aegypti* mosquito breeding is so well controlled that it would be impossible for the disease to spread to the extent of an epidemic. Vigilance cannot be relaxed, however, since while only three cases were reported in the Americas during 1925, a new outbreak occurred in Parahyba, Brazil, in April, 1926. Even as this report is being presented occasional cases are being sporadically encountered in the interior cities of northern Brazil. However, thorough surveys made by the International Health Board of those countries bordering on the Pacific from Mexico to Chile would indicate that the disease has been successfully controlled and have enlivened the optimistic hope that the Western Hemisphere may be declared free from yellow fever when the last cases in Brazil have disappeared. What a contrast with conditions twenty-five years ago, since when the *Leptospira Icteroides*, causative

organism of Yellow Jack, has been discovered by Nagouchi in 1918, thus providing a definite means for diagnosis and possible immunity; the part in the transmission of the disease that is played by the female *Stegomyia*, discovered in the spring of 1900 by Walter Reed and the almost complete eradication of an endemic disease that for hundreds of years had spread terror and death from Montreal to Montevideo. With its disappearance from the Americas only one stronghold of infection remains, located on the west coast of Africa, and preliminary studies are now in progress looking toward the attempted eradication of this final focus.

From the very outset of a healthy regime in Panama, malaria control has been taken as a measure of sanitary efficiency. While yellow fever was swift, deadly and the gravest disease as far as the death rate was concerned, malaria was always the greatest cause of non-effectiveness and invaliding. In 1906 the wards of the hospitals were crowded with employees prostrated with this greatest of all causes of incapacity in the tropics. The admission rate then was 821 per 1,000, while during last year, 1925, the rate was .17 per 1,000. In the annual report of the Chief Health Officer of the Canal Zone for last year, he says:

"While the figures naturally vary somewhat from time to time, it should be noted that there has been a practically constant residual rate for this disease during the past nine years, the only marked deviation being a rise to 31 per 1,000 in 1919, which occurrence is explained by the fact that in 1919 many infected native Panaman laborers were imported into the zone to take the place of striking West Indian employees. As in the past, much malaria developing in the Canal Zone was contracted outside the sanitized areas of the zone. Two employees died from malaria. Both were employed by the dredging division, working at night in parts of Gatun Lake, adjacent to the unsanitized areas. One was a colored West Indian, the other a white American who refused to see a physician until nearly moribund." The care with which the malaria problem is watched and combated is illustrated in the foregoing

sentences. An official mention is made of two deaths occurring from malaria during a year on the Canal Zone. How little notice these would have warranted in 1906 when out of each 1,000 persons nine succumbed to the disease!

During the first six months of 1926 only 671 cases of malaria have been reported, or the lowest number for any half year in the past ten years. However, the mosquito control measures must continue unabated, because in a Tropical country the jungle is every ready to push back, overcoming all the efforts of sanitary science. And the problem is a stupendous one in Panama since there is a high rainfall rate nearly every day for nine months of the year, and if a cow leaves a deep footprint in the soggy ground several inches of water immediately ooze into it, and at once a perfect breeding place for the *Anopheles* is formed. A large part of the isthmus is a low-lying, alluvial plain; swamps and marshes abound; while artificial water containers formed in the luxuriant vegetation by the vagaries of nature cause an unlimited extent of breeding grounds to be constantly available. Furthermore, among the native population with their illiteracy, poverty, nomadic existence, inherent indifference and primitive modes of life it is practically impossible to control the carriers and reduce the morbidity rate to a desired level. So, while greatly improved, it will never be possible to eradicate malaria with the same degree of complete success that has attended the attack on yellow fever.

At the present time anti-malarial measures are carried on with equally as much vigor as in 1906. However, the tendency is now toward accomplishing permanent sanitation in the form of elimination of mosquito-breeding areas rather than by routine temporary measures. To this end large swamps have been drained or filled by hydraulic means while open earth ditches requiring ceaseless vigilance and labor at great expense have been supplanted by subsoil rock and tile drains. During 1925-26, instead of digging hundreds of lineal yards of open earth

ditches, sixteen and three-quarter miles of subsoil tile drains will be laid, four and one-half miles of concrete bottomed drains are being placed, but only three miles of new earth ditches are planned. This will be the largest program of permanent work done in any two years on the isthmus, and when it is considered that the rainfall for June, 1926, was 31.2 inches, it will be obvious why vast stretches of permanent drainage are so necessary.

The jungle has been cleared for at least two miles back from all towns and fruitful gardens, lawns and lovely grounds are now taking its place. It has been proven that the *Anopheles Albimanus* will fly at least that far, with the result that the early idea of General Gorgas of clearing for a hundred yards has long since been replaced. All houses occupied by Americans or employees on the Canal Zone are screened so carefully that the buzz of a mosquito is very rare. If mosquitos are discovered in a home, the Health Department is notified, just as police headquarters would be called if a burglar were discovered in a house in the United States.

Very little oiling of water-holding areas is now practised in contrast with the sixty-five thousand gallons formerly used monthly. Instead, in each district an experienced larva hunter searches carefully for breeding places and oil, mixed with phenol soap emulsion, is only used when malaria carrying wigglers are found. In place of this largely obsolete measure there is now used to a certain extent the more economical, and more simply applied Paris Green that was advocated as a mosquito larva poison in 1921 by Barber of the United States Public Health Service. This material becomes efficacious by sprinkling breeding areas with a powder of ninety-nine parts of road, or other inert dust and one part Paris Green. Interesting experiments were begun in 1923 by King in dusting large swamp areas from aeroplanes, and these have proven that the outlook for malaria control through this anti-mosquito measure is rendered definitely more encouraging than previously.

Each case of malaria is reported and

studied as to its probable source of infection. Houses are searched for the presence of the offending causative agent. When discovered, the variety of these is identified and it is generally found that the invader is of the *Albimanus Tarsimaculata* group. This is the most common enemy on the isthmus breeding nearly always in fresh or slightly brackish, but clean, quiet water where sufficient sunlight can penetrate to cause the growth of algae; traveling long flights and persistently seeking human beings; spending hours locating an opening through a screen. This one group of mosquitos alone deserves all our efforts to make Panama free from malaria.

Quinine prophylaxis is infrequently used on the isthmus at the present time, except by field parties, prospectors or others constantly exposed. Recent studies by York and Macfie would indicate that quinine given to a person exposed to malaria will not prevent an infection. However, if the dose be taken in sufficient quantities for from ten to fourteen days after infection, it will prevent the occurrence of the symptoms of malaria. It is therefore considered useless to give quinine to prevent an infection, and as a prophylactic it would only be justified when there is a high percentage of infection and when large numbers of infected mosquitos are present.

A word as to the usual treatment of malaria followed on the isthmus may prove of interest. For the average individual with a moderately severe, acute attack, forty to forty-five grains of quinine bisulphate or bihydrochloride, divided into three doses, are given daily and this treatment continued until the temperature is normal. The dosage of the quinine salt is then reduced to thirty grains daily and continued for from seven to ten days' time. Usually then Bass's standard treatment of ten grains of quinine daily for a period of two months or longer is followed, according to the severity of the infection. Recurrences after this regime are rare. In the acute, malignant cases of malaria intravenous or intramuscular injections of quinine salts are used freely. A neutral or very faintly acid preparation is used in

which the mixture contains one part of quinine to ten to twenty parts of diluent. As much as fifteen grains of a quinine salt is given in this way and usually repeated in from three to four hours until four injections have been given. Sir Leonard Rogers recommends cinchonine bihydrochloride for intramuscular injections.

Haemoglobinurie, or Blackwater Fever, regarding the etiology of which there has been so much controversy but no definite decision, is rather rare on the isthmus, but the mortality from this condition, when occurring, continues to about 27 per cent. It is now pretty generally conceded that it is associated in some way with repeated and intense malarial infections, usually lasting for years, and that the *Plasmodium Falciparum* is the organism involved in about 85 per cent of the cases. In Panama, as in other tropical locations where observations have been made, it is found that Blackwater Fever occurs in a ratio closely proportionate to the prevalence of Aestivo-Autumnal malaria. Of course this conclusive observation is subject to several qualifications since at least two other very convincing theories regarding the disease have been advanced. Blackwater fever rarely ever occurs among the Panamanians of mixed blood or the negroes, but usually occurs among the white natives and foreigners to the tropics.

Dengue and filariasis, two other diseases commonly carried by the mosquito, do not thrive and are rarely encountered in Panama. An occasional case of the former is brought in on shipboard and a few cases about which there was some doubt have developed locally. Neither does filariasis cause any grave concern, since only three or four cases are reported annually. Apparently this disease, which, like dengue, is transmitted by the *Culex Quinquefasciatus*, is not as easily contracted as some of the other mosquito-borne diseases and there is no proof of its spread on the isthmus.

Typhoid fever and the various types of dysentery were very prevalent on the isthmus in the earlier part of the American occupation. In 1907 the admission rate for typhoid fever was 14.45 per 1,000, while in

1925 only fifteen cases of the disease were reported with two deaths. The majority of these cases occurred in seamen, only seven cases being actually natives of Panama. The Protozoan cause, mode of conveyance in cyst form, and the treatment of amoebic dysentery have been well established. The incidence of the disease and the mortality caused by it on the isthmus have been markedly reduced. In 1906-08 out of 170 patients admitted to Ancon Hospital with this disease fifty-one died, while on the United Fruit Company's plantations throughout the tropics in 1925 of 420 admissions only seven died, due to the use of emetine introduced by Rogers in 1912, supplemented by bismuth subnitrate in heroic doses. For the past ten years the standard treatment of amoebic dysentery pretty generally followed on the isthmus has been to give one-half to three grains of emetine a day until nine or ten grains have been given. Concurrently the administration of one hundred eighty to two hundred grains of bismuth subnitrate in a glass of water every three to four hours is carried on and gradually reduced as the stools become formed and lessened. This treatment combined with a generous milk diet has been found to give uniformly good results in grave cases. Relapses rarely occur when the bismuth method of treatment is properly carried out, which may require two or three months' time. As contrasted with *E. Hystolitica* infection, bacillary dysentery is a fairly common disease on the isthmus. It is frequently found in children under five years in which the mortality is high. It is considered that it is most commonly transmitted by carriers. Since a considerable proportion of the cases are wrongly diagnosed, the hospitals on the isthmus make routine stool cultures upon all cases of enteritis and entero-colitis.

Of course the fundamentally important measures in controlling the dysenteries and typhoid in Panama has been the furnishing of an abundant supply of pure water and the protection of the foodstuffs from contamination. The first has been done by the installation of modern filtration plans of mechanical type, combining aeration with pre-

cipitation and later ekloination, that supply safe water to the Canal Zone and the important cities of the isthmus. All markets in which foodstuffs are sold are rigorously supervised by the Health Department of the Canal Zone, which insures protection against contamination with and the spread of fly and filth-borne diseases. With a modern water and sewerage system the danger of filth-borne diseases is no longer a grave one. Also, in view of the rigid measures enforced for garbage and manure disposal, flies are at a noticeable minimum as compared with any part of the United States in summer, with a consequent lessening of fly-borne diseases.

A few cases of smallpox continue to appear throughout the years as a large part of Central America outside of the isthmus is infected with this disease and contacts are continually entering the cities in spite of a vigorous quarantine. Vaccination is compulsory in the larger towns and the government of Panama maintains a staff of full time employees constantly engaged in vaccinating the public and controlling small outbreaks. No cases of smallpox have occurred among the Americans on the isthmus for the past fifteen years and no recorded deaths among the natives since 1907.

An occasional case of leprosy is discovered on the isthmus, and to care for these people a leprosarium having about one hundred inmates is maintained by the United States. Last year twenty-two new cases were detected and admitted to the colony. These people are of various nationalities living on the isthmus, but under existing law every case detected, irrespective of origin, must be at least temporarily committed until repatriation or other suitable disposal may be arranged. During their commitment all suitable patients are given intensive treatment for their leprosy. Intramuscular injections of the ethyl esters of chaulmoogric acid, ethyl esters of cod liver oil and sodium chaulmoograte are all being used on selected cases in order to attempt to more definitely determine their relative efficacy. From the results obtained on the isthmus, as elsewhere, it is reasonably well established that about

50 per cent of the early cases, but not more than 25 per cent of those from three to fifteen years' duration, will lose all symptoms of leprosy under the new chaulmoogra treatment. However, it is still too early to herald this drug as a definitely specific cure. Certainly the progress of the disease can be arrested if taken in time and a large number of cases at least clinically cured, but the frequency of relapses calls for the greatest caution in claiming permanent results.

The danger of an invasion of bubonic plague from the west coast of South America looms ever threateningly over the Isthmus of Panama. It is borne in mind that plague exists as an epizootic among rats for a considerable time before spreading to human hosts, therefore vigorous efforts are directed at the rodents. Since the last two cases in 1905, and the vigorous antirrat campaign that followed, not a case of human or animal plague has occurred. However, vigilance is not relaxed. The docks of the terminal ports are models of rat proof construction. Rat-proofing of all new buildings is insisted upon, and every effort is made to store material and protect foodstuffs so as to discourage rat harboring and propagation. Old buildings found to be rat infested and dangerous are condemned and demolished. Poisoning with barium carbonate is resorted to in stores and warehouses. Trapping of rats as an index of their prevalence is carried on daily in localities bordering the waterfront. The catch is autopsied at the Board of Health Laboratory for possible *B. Pestis* infection. With these anti-rat measures Bubonic Plague, endemic on the Pacific coast of South America since 1902, has little chance to gain a foothold on the isthmus. Nevertheless, the quarantine service is constantly on the alert to prevent its introduction. The usual requirements of breasting off by a floating fender so a vessel does not touch the wharf and the use of rat guards upon cables from the ship to the dock are carried out so that rodents cannot come ashore. But greatly more important is the disinfection of ships from unclean ports by fumigation for the destruction of rats. This is done with cyanogen chloride which has

been proven to be the most economical, efficient and readily applied form of material for use in the elimination of rodents. What has been done for yellow fever can be done with Bubonic Plague which is probably now the greatest disease menace facing the isthmus. No steps are spared looking toward its prevention.

With the important diseases that formerly decimated the population of Panama well in hand, it is interesting to consider the conditions causing the greatest mortality at the present time. It is even more striking to observe that they are approximately the same diseases that head the list in temperate zones, even possibly about the same as in Colorado. For 1924 the six diseases causing the highest number of deaths were:

Pneumonia, broncho and lobar.....	3.97
Tuberculosis, various organ.....	3.20
Diarrhaea and enteritis (in children)....	1.74
Nephritis (acute and chronic).....	1.39
Organic diseases of the heart.....	1.29
Cancer (various organs).....	.84

All other different causes of mortality brought the total rate up to 18.92 per 1,000 population, which compares very favorably with New Orleans, Charleston, Baltimore, Paris or London, and is much better than several other northern cities of a corresponding type of population. Among the natives, pneumonia and tuberculosis cause more deaths than any other conditions. These diseases are exceedingly common and fatal in the negro, the Cholo Indian and the mestizos who are in poor physical condition for repeated attacks of malaria. defective living conditions, and who seem to have little resistance to pulmonary infections.

Venereal diseases and syphilis are likewise exceedingly common among the native Panamanians. While rarely reported as the primary cause of death, there is no doubt but that the latter condition is the underlying cause of a large part of the organic heart diseases showing mortality. Nephritis is more often seen in the West Indian negro than the Spaniard, and it is no uncommon occurrence in a tropical hospital to see a male ward largely filled with patients presenting all the characteristics of Bright's

disease. Of course the mortality in this group of cases is high.

Yaws, or Framboesia Tropica, and tropical ulcers frequently due to the *S. Refringens* are of considerable importance among the native population. Both require considerable hospitalization for their cure, although yaws responds to salversan in a highly satisfactory manner. Pellagra is relatively infrequent on the isthmus but tends to be more common in the negro than in the Panamanians, and shows about the same mortality as in other localities.

Hookworm is very prevalent in the interior of the country, as many as from 40 to 60 per cent of the people being infected. The International Health Board is doing a monumental work in combating this condition by education, privy construction and actual treatment. During 1925 a total of 20,585 persons were treated at least once and the building of 4,654 latrines was brought about by this organization. Thymol, oil of Chenopodium and Carbon Tetrachloride are being used to great advantage in the uncinariasis campaign.

The acute exanthemata in the tropics are relatively uncommon and very mild when they do occur. When scarlet fever is introduced from elsewhere it seems to immediately lose its virulence and the disease rarely shows any serious complications in the few contacts who develop it. Likewise, measles and chicken pox are only infrequently encountered, rarely ever assuming the proportions of an epidemic.

That an outstanding piece of constructive public health work has been accomplished by the United States Government on the Isthmus of Panama cannot be contradicted. So great is it that there is perhaps a temptation to unduly exult over what has been done. However, I believe that the physicians of America may thrill with a modest but well warranted pride when we consider that this mighty project was only made possible by a member of our profession, Dr. William C. Gorgas. He who gave every atom of his strength, his training and his experience, should rightfully have a place with the other pioneers who have forged the

history of medicine. To him the civilized world owes an acknowledged debt of gratitude. Not only has he made it possible for commercial intercourse to readily take place between nations hitherto far removed, but there on the Isthmus of Panama he has furnished to the world a demonstration of the strength of a mighty nation, not in conquest or the annexation of additional territory, but in the greatest adventure for the benefit of mankind that had ever before been attempted.

Well may the official seal of Panama Canal bear the motto, "The Land Divided, the World United."

R. W. Corwin, Pueblo: The only excuse for asking me to open this discussion is because I have visited Panama several times, and been given an opportunity to learn of the excellent work accomplished by Dr. Bocock and others, to make Panama as "healthy as Denver and Colorado Springs," possibly Pueblo might be included.

I can add nothing to what Dr. Bocock has given in his very comprehensive and scientific paper. But perhaps it would not be out of place to refer to De Lessep's Suez Canal success and his Panama Canal failure. He seemed to think all canals were to be constructed in the same manner, irrespective of climatic and topographical conditions.

At Suez the soil was easily removed and no elevations to be encountered. He apparently went to Panama without studying the conditions of that region. He was ignorant of the causes of the mosquito plagues, that were so fatal to those working on the canal, especially the imported laborers.

He had plenty of money at his command and spent it freely. It is said his failure cost as much as the American success. His failure apparently was not alone due to the mosquito, but to waste, corruption, graft and bad management. Someone has said that "one-third of the money was spent on the canal, one-third was wasted, and one-third stolen."

The French, however, built a fine hospital, but failed to make the best uses of it. Some of the things found by the Americans when they came in possession of the Canal Zone were amusing, to say the least—namely: a ton of rusty, unused pens, ten thousand snow plows, and fifteen thousand torches, to be used in the parades, when celebrating the completion of the canal.

In connection with all this the sad side of the failure cannot be overlooked; but that is a thing of the past. Today sanitation and eternal vigilance is the work of those in charge of the Zone. An incident may be given: One morning, after a rain in the night, a small hole about a foot in diameter was discovered in the sidewalk in front of the hotel. The sanitary officer appeared and emphatically ordered the breeding mosquito pool filled, and the sidewalk repaired.

Insanitation is corrected in the Panama Zone promptly, and will be continued as long as the Zone is in the hands of the Americans and such works as did Dr. Bacock, when in charge of the Panama Hospital.

Leonard Freeman, Denver: I have been very much interested in Dr. Bocock's excellent paper. I do not know of anybody who is better fitted to speak on this subject than Dr. Bocock.

A number of years ago I happened to be in Panama and a member of the medical profession took me about. Among other places, he took me into the Santa Thomas' Hospital, a very large institution. He said: "This hospital used to be one of the worst hospitals imaginable, but we have a man here who has cleaned it up and put it in good order, and we are now proud of it; it is one of the best hospitals you can find any place." He said, "I want you to meet that man." He took me into the private office of the superintendent of the hospital and introduced me to Dr. Bocock.

That same evening I went to a medical society. Dr. Bocock was the president. A young man in the employ of the Rockefeller Foundation was reading a paper. He told about the great difficulties of enforcing the "clean-up process" upon the natives in Panama, especially as regarded the hook-worm disease. He said that the hook-worm was in fecal material, and that the natives got it largely by tramping around in this material about their villages, in their bare feet; so the Rockefeller Foundation went to a great deal of expense to build wooden latrines in the villages. After they got them all built, the natives, with great promptness, tore them down and used them for firewood; so the Rockefeller Foundation had to

go to more expense and build more latrines, out of Portland cement. He also spoke of the fact that in former days, before the clean-up process, the natives got their drinking-water from wooden tanks that were elevated up under the roofs of the houses to catch the rain water. They were very fond of this particular kind of water. The authorities found out that the infection of dysentery came largely from these tanks, so they tore down the tanks and forbade the natives to build any more. Then the natives, at night, sent wagons into the country where the tanks still existed in certain villages, and brought water in barrels from the tanks into Panama. It is the only case of bootlegging of water I ever heard of.

Dr. Bocock speaks of the great benefits introduced into South America by this clean-up process, but he does not speak about the difficulties. Some two or three years ago I happened to be in Arequipa, Peru. They have a water supply that comes from the mountains, from some very beautiful, pure springs; but it comes in open ditches, and the natives use these ditches for sewers before the water gets to the city. The Rockefeller Foundation offered to help clean up this water-supply, but the people in Arequipa refused to have it done. They said they had been used to that water all their lives, and it didn't hurt them to drink it, but if it were "cleaned up" and made safe for Americans to drink, the Americans would flock there and take possession of their city and country just as they had taken possession of Panama.

CAUSES OF RECURRENT INGUINAL HERNIA

A. P. KIMBALL, M.D.

CASPER, WYOMING

From statistics published, we are aware that hernia occurs in about 12 per cent of the male and about 2 per cent of the female; that is, about one man out of eight sometime in his life, has a rupture, and about one woman out of fifty. This of course includes all varieties of hernia. The common forms are due to congenital defects at three points in the abdominal wall, the inguinal, the femoral, and the umbilical regions. The other forms of hernia, such as obturator, sciatic, hernia of the linea alba, diaphragmatic and post operative, are comparatively rare, when compared with the common forms. We find that inguinal hernia is regarded as the hernia of the male, femoral hernia the hernia of the female, and yet, after careful study, our records show that inguinal hernia is more common in both male and female. We find while femoral hernias are comparatively more common in the female than in the male, the total of inguinal hernias in the female outnumber those of the femoral.

I wish at this time to trace briefly the op-

eration for inguinal hernia. I might say that, in going over the literature prior to 1878, a number of methods had been employed, such as subcutaneous wire sutures of the sac, or the injection of irritating substances, as tincture of white oak bark into the sac, no doubt with the idea of inducing irritation and obliteration. I wish also to state that long before that period thousands of hernias had been operated upon for strangulation, but no radical cure had been formulated. Czerny, who was an assistant to Billroth in 1878, devised his method of cure of hernia by cutting down upon the hernia, isolating, ligating, and removing the sac, and then suturing up the external ring. This was the beginning of the first step in a radical operation for inguinal hernia.

The next improvement was by Wolfler. He split up the external oblique, which covered in, and was in front of the inguinal canal, an operation which he called "kanalschnitt." In other words, he added to the work which Czerny had done, the procedure

of removing the sac high up at the internal ring, sewing up the canal, and thus obliterating the canal from the internal to the external ring.

No other procedure was brought forward worth mentioning, until 1886, when Bassini published his operation, which he claimed to have been doing for several years, and which was the next great step in the radical cure of inguinal hernia.

In other words here was another addition to the Czerny and Wolfler type of operation, only that he elevated the cord from the canal, closed the canal under the cord, then put the cord down over the closed canal, and covered the cord with the external oblique and superficial tissues.

Wolfler then added another important step by providing for special protection in very large openings by transplanting the rectus muscle and the rectus sheath.

The next important move was by the overlapping of tissues, or the imbrication method of Wyllys Andrews of Chicago. I might say that at this time, a great number of our surgeons believe that the description that I have just given you is all that is necessary, and constitutes practically everything of value in herniotomy today. There have been hundreds of suggested improvements from time to time, yet we find the largest numbers of surgeons today still using the above methods in their radical cures.

We find that at one time silver wire was enthusiastically received. After a great deal of post operative difficulty it was discarded. Then kangaroo tendon was used for a great number of years; still later a great number of men used silk; finally the majority of surgeons became enthusiastic about chromic catgut because it was supposed to last longer in the tissues than ordinary catgut. There are, at the present time, a great number of men still using chromic catgut, yet the largest number are using plain iodized catgut, which lasts about ten days and which seems to be long enough to insure firm enough union.

All surgeons admit a certain per cent of recurrences, and all surgeons admit infection plays a great part. Most surgeons

underrate their per cent of recurrences. Patients usually go to another surgeon, therefore the first surgeon's percentage is less than actual recurrence.

I wish to review at this time some different opinions from the different parts of the world, with reference to the causes of recurrent hernia. In Halsted's Clinic,¹ 1919, there was a great deal more infection than now and Bloodgood found 25 to 30 per cent recurrences. He also found that when a wound healed by first intention the percentage dropped to 6 per cent in the same clinic. Most surgeons admit from 5 to 10 per cent recurrences, all cases considered.

Moschcowitz² tersely tabulated the causes of recurrence as follows:

1. Proper operation improperly done.
2. Improper operation properly done.
3. Improper operation improperly done.

The different factors involved in technic in anatomy which have to do with recurrence can easily be enumerated as follows:

1. Type of hernia.
 - a. Direct and indirect.
2. Variations in the normal anatomy of the inguinal canal.
 - a. Absence of conjoined tendon and deficient aponeurosis.
3. The type of operation.
 - a. Involving the question of transplantation of the cord and imbrication.
4. Sliding hernia.

Erdman³ in the Annals of Surgery 1923, makes a very efficient classification of inguinal hernia performed by nineteen surgeons. Eighty-nine and one-half per cent were followed to determine the late results. Six and seven-tenths per cent had recurrences. The number of operations performed were as follows: 665 oblique inguinals were performed with 21 recurrences within two years' time, ten of these within six months, and 6 within 6 to 12 months, 2 between 12 and 18 months, and 2 between 18 and 24 months. 313 direct hernia operations were performed with 52 recurrences in 2 years' time, 25 of these occurring within 6 months, 13 between 6 and 12 months, 10 more between 12 and 18 months, and 4 between 18 and 24 months. Of the oblique we have a

2 year percentage at 3.15 per cent and we have a direct inguinal type of percentage of recurrence of 16.61 per cent. Erdman also found the following causes conducive to recurrence in the above enumerated cases, as follows:

1. The direct sac overlooked at operation. In five instances the surgeon stated that no sac was found, but within three months a definite hernia was found. All five failures occurred in cases diagnosed as bilateral hernia. Erdman's experience indicates that in such cases the peritoneum should be exposed and the slack taken up, even if no definite sac is recognized. Recently I had a female patient where no sac could be found. I opened up the whole inguinal canal and found the round ligament, but no sac could even be found, even after the peritoneum was opened and my finger inserted and run along the peritoneal surface in the region where the hernia had presented. After removing the appendix an area of two by four inches of the peritoneum was removed. This was brought together and supplemented by the Andrews imbrication method. This has been about two months, and to date I have had no recurrence.

2. Incomplete repair, because of the patient's poor physical condition.

3. Post operative accident. The mortality was .03 per cent. One death only was due to wound infection. One cause was pneumonia, and one to embolus. Bilateral hernia was present in about 37 per cent of the cases. Oblique hernia was bilateral in 26 per cent of the cases. The Bassini operation was used in nearly all patients over twenty years of age. For many of those who were younger, the Ferguson non-transplantation method was used. Erdman believes, in all direct hernia, the cord should be transplanted, and a firm and deep closure of the weak triangle of Hesselbach should be made. Of 52 cases of operation for recurrent inguinal hernia which were traced, 23 per cent had a recurrence. The average stay of these cases in the hospital was 13.7 days, and for direct variety, it was 15.8 days. Recurrences developed in 10.9 per cent of the infected cases. Scrotal swelling occurred in

13 per cent, but in very few of the direct hernia operations.

Morrow⁴ believes that the conjoined tendon is either weak or absent, the abdominal wall is weak, and that long standing hernia containing gut and omentum are complicated by sliding hernia. He makes an unusually good point in that he claims that no one operative procedure is applicable to all cases, and that the removal of the sac alone will cure a certain number of cases. He also stresses the point that transplantation of the cord is usually advisable. He also states that in many cases of direct hernia, suture of the inner leaf of the external oblique to Poupart's ligament and reinforcement by transplantation of the rectus muscle are necessary. He claims that technical errors include failure to separate the sac from the transversalis fascia thoroughly; leaving too large an opening for the cord; failure to remove the sac, and failure to recognize an associated hernia, the so-called saddle bag type; too tight sutures causing constriction and interference with nerve and blood supply; suppuration is followed with 30 per cent recurrence. Premature separation of deep sutures due to improper time and too early absorption of the sutures, associated with strain from wretching and vomiting, following general anaesthesia, slipping of ligature from sac.

Seelig and Chouke⁵ performed experiments on fascia and muscle of the thigh of dogs where the fascia was incised and sutured to the muscles without tension. Various suture materials were employed; some were purposely soiled to observe the effect that infection would have. In another group the muscle was traumatized and fascia sutured to the traumatized area. In others the fascia was sutured to the fascia. The following results are reported:

1. In every instance of clean wound healing the fascia was widely separated from the muscle to which it had been sutured. A very thin and transparent membrane of areolar tissue bridged the gap between the edges of the fascia and the muscle. Although the sutures were put in under no tension, the

nonabsorbable sutures usually cut their way through the muscle and hung in the fascial edge. In some instances there occurred along the suture a reactionary fibrosis.

It seemed to make no difference whether catgut or silk was used, or whether the suture was continuous or interrupted.

In wounds that healed by primary union the fascia was separated widely from each other and would not establish a close union.

In every case of wound infection the fascia was separated widely from the muscle to which it had been sutured. In these instances of wound infection, the layer of delicate areolar tissue was usually absent, but the reactionary inflammation about the sutures was more marked than in the clean wounds. The streaks of heavy connective scar tissue bridged the space from muscle to fascia. In no instance of simple suture in which infection took place was there a solid sheet of heavy connective tissue found uniting the edges of the separated muscle and fascia. In these infected wounds therefore there was neither direct union of muscle and fascia, nor even continuous indirect union by solid uninterrupted layer of cicatricial tissue.

In every instance in which the muscle was traumatized by the excision of a wedge, so that the fascia could be sutured in the raw trough, there was an attempt at direct union between fascia and muscle. This union was complete in only one instance. Applying the above experiments to usual technique followed in hernia operations, the authors came to the following conclusions:

1. Normal muscle will not unite firmly with fascia or ligament. It is therefore a useless procedure to suture the abdominal muscle to Poupart's ligament in the hope of buttressing a weak or ruptured abdominal wall.

2. Fascia unites well with fascia.

3. The weak abdominal wall should be strengthened by a method to secure fascia to fascia approximation.

I feel that from these experiments we can benefit our patients greatly by keeping these points in mind, not only with our work in the inguinal region, but in other parts of the

body, requiring the approximation of muscle and fascia, whether to close a herniated opening or just the normal approximation of tissues.

Hessert & Bloodgood⁶ found that the conjoined tendon was either attenuated or absent in direct hernia and in recurrent improperly operated cases. They also found that it was possible to detect the absence of the conjoined tendon, prior to operation, by means of the palpating finger. In other words the fascia over the inguinal canal will be found to be thin and atrophic with its fibres separated and even displaying the muscle underneath. In these cases the external ring is abnormally large, admitting the tips of one or two fingers easily. They claim that this atrophic condition and large ring are not the result of hernial protrusion, but are of congenital origin and that it is due to loss of the conjoined tendon and the condition of atrophy and enlarged ring are the predisposing causes of hernia. That in all cases of this type the lower angle of Hesselbach's triangle must be strengthened by removing the defect, either by transplanting the rectus muscle into this area or by doing away with the Bassini method and using the Andrews imbrication method. Most operators are using the latter method, because of the experiments which were performed at Johns Hopkins Hospital. These experiments were the transplantation of the rectus muscle to cover the weak place in Hesselbach's triangle. Halstead maintained that the action of the rectus muscle was to draw it back into normal position and always away from the point to which it was transplanted and, considering the experiments of Seelig & Chouke, one cannot but hold that Halstead was correct. No doubt the union was not sufficiently strong to prevent the pulling away of the rectus from its transplantation point and back again to its bed in the lower abdomen, thus leaving the triangle just as weak as it was prior to the operative procedure.

Hessert believes that it is because most operators persist in doing the Bassini operation in this class of cases that there are so many recurrences. He further states that

the imbrication method of Andrews for the oblique variety, and Halstead's method for the direct hernia, will effectively fulfill the requirements and prevent the greater number of present day recurrences.

At the present time, I do not believe that anyone will disagree, that the Ferguson method is not suitable for direct hernia, especially with the absence of the conjoined tendon.

Coley has 0.6 per cent recurrences in his cases of direct hernia with the Bassini method, and 4 per cent in a similar bunch of cases with the Ferguson method.

It is bad technique to bring the cord out superficially to the aponeurosis where it is only covered by skin, for the reason that you leave a weak area where the cord comes through the aponeurosis and these cases usually have a painful area around the opening in the aponeurosis, which is entirely eliminated by the Andrews method.

We also find that the Halstead technique is not suited for indirect hernia, as it leaves a weakness in the aponeurosis at the internal ring which is just the point where our recurrence is apt to occur. But we do find that in our direct hernia cases the Halstead and Andrews method keep the cord away from our weakest point and therefore prevent recurrence.

Sliding hernia presents one of the most difficult problems. We find that if we can eliminate the cord in these cases that we have simplified the situation very materially, but there are very few patients who will agree to a castration so we must build these cases up layer by layer, and after a great amount of persistence, we do get results in a large number of them.

In going over the statistics of a large number of operators we find that our recurrences are at both the internal and the external ring.

Russell of Melbourne, comes forward with some very strong points gleaned from his extensive experience with inguinal hernia, and I shall enumerate them as he gives them:

1. Spontaneous hernia is of two kinds, saccular and non-saccular.

2. In saccular hernia, removal of the sac will cure the hernia. In non-saccular hernia, removal of the sac is useless.

3. The typical forms of saccular hernia are the:

(a) Oblique Inguinal.

(b) Femoral.

(c) Direct hernia that enters a small congenital sac coming through the conjoined tendon, a rare form.

4. The typical form of spontaneous non-saccular hernia in the ordinary direct hernia of middle and later life, which must be carefully distinguished from the rare form just spoken of under paragraph 3, sub head (c).

Russell makes the wide difference of oblique hernia, always saccular, and never due to muscular weakness, and the direct hernia, always due to muscle weakness. He also claims that it is folly to suture the muscles and aponeurosis to Poupart's ligament in cases of oblique indirect hernia as there is not any muscular weakness in this type of hernia.

After the canal is exposed and the sac is isolated, the next procedure as related by him is as follows:

Seize the sac in a pressure forcep and pull it forcibly out; strip the structures of the cord completely away from the sac and abdominal peritoneum; free the neck of the sac by sweeping the finger around it.

Next twist the sac tightly up until you can practically twist it no more, pulling forcibly upon it all the time this will insure that the entire sac will be torsioned up to the point where it comes off from the abdominal peritoneum and it is at this point that the ligature must be applied.

Do not transfix with a needle; apply a "crusher" of some sort to the spot where the ligature is to go; below the crusher, throw the ligature (catgut always, never silk) which will slip into the crush as the instrument is withdrawn.

Nothing more will remain to be done, except to repair the incision in the external oblique.

From his study and treatment of hernia in children, he concludes:

1. Those with imperfectly closed funicular process (immune from oblique inguinal hernia).
2. Those with open funicular processes, without hernia (predisposed to hernia).
3. Those with open funicular process with hernia.

Russell found from the above facts that he could make an exact estimate of what could be expected from truss treatment and from Ochsner's gravity method. In other words, so much more could be achieved from not using the truss or expectant treatment, and it was done so much easier and more permanently that they discarded the expectant method for the operative procedure. Since they have removed the sac in these cases, the truss has fallen into disrepute in Melbourne.

In other words, he claims there is no difference in the etiology of the hernia of children and that of adults. Oblique inguinal hernia in adults as in children is never anything except funicular in the male, and it is cured by removal of the sac, if it is efficiently done, just as surely in the adult as in the child.

Direct hernia (the ordinary form) is an affection of middle and later life mostly, and is of course not seen in childhood, the rare saccular form of direct hernia might, no doubt, occur in childhood but rarely.

Hugson,⁸ in speaking of operative treatment of hernia and the definite difference of opinion in regard to the most vital part of the whole procedure, takes issue with Russell in the following manner:

No case has been found showing a recurrence in which the inguinal canal has been strengthened as a result of finding a dilated ring, although either no attention is paid to the possibility of a sac, or else none was found when sought.

Data on this point is not reliable at the present time to draw definite conclusions, and that the combined procedure of excision of the sac with plastic treatment of the inguinal canal must be the method of choice. In other words, if anything is done, it should be a complete hernia operation. He further

states that, in cases in which the inguinal canal was opened on account of relaxed ring and in which no clinical evidence of hernia was seen, in every instance a small persistent sac has been found; also that an analysis of a group of cases showed that 16 per cent of individuals presenting hernia on one side, eventually develop hernia on the opposite side. He states that the facts of hernia correlated to date only substantiates the theory of "preformed sac" as the etiological factor in inguinal hernia.

One hundred consecutive cases of both single and double herniotomies have shown that the double operation increases the incidence of postoperative pulmonary infections but it does not increase the incidence of wound infection. If any operative measures are used to repair the relaxed ring, a complete herniotomy should be performed.

Watson⁹ reinforces the weak places at the internal ring, lower end of the incision, over the pubic bones and in the line of the deep sutures by lateral displacement of the cord. The Bassini method is used up to the point where the cord is transplanted and after all the coverings have been removed, and it has been made as small as possible, the cord is placed on the internal oblique (after the upper flap of aponeurosis is freed from the internal oblique as far as the outer border of the rectus) $\frac{1}{2}$ to 1 inch internal to the deep suture line, the exact distance depending on the length of the cord and retained in this position by one or two sutures. These mattress sutures are inserted external to the cord, internal to the deep suture line and they unite the inner surface of the aponeurosis to the internal oblique and conjoined tendon.

The aponeurotic flaps are united in the usual manner. Watson oftentimes sutures the aponeurosis to the deep suture line, Poupart's ligament, internal oblique and conjoined tendon as high as the lower edge of the internal ring. This method of closure reinforces the internal ring by changing the angle of the cord as it leaves the internal ring and by getting the cord away from the deep suture line. It permits firm union between muscles and aponeurosis along the deep suture line so that the internal ring

and the deep sutures, the usual points of recurrence, are doubly reinforced.

This operation cannot be used when the spermatic cord is abnormally short, as in hernias associated with undescended or mal descended testes, or in recurrent hernias when the aponeurosis of the external oblique is deficient or has been replaced by scar tissue.

CONCLUSION

The following factors are conducive to recurrence:

1. Infection.
2. Improperly removed sac. This naturally covers those cases where no sac is found in which the slack should be taken up.
3. Too tight ligatures and the attachment of muscle to fascia.
4. The bringing down of the rectus muscle and fastening it to Poupart's ligament. A fascia lata transplant to replace the atrophied tissues and attached to fascia certainly would be better technique and would make a stronger wall.
5. The transplantation of the cord in direct hernia.
6. A failure to study the cases preoperatively and during the operation to determine the proper technique to be followed.

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- ⁷Russell, *Surg., Gynec. & Obstet.*, 1925, Nov., Pg. 605.
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An electric incubator is the most satisfactory substitute for a hen, according to Edmund Burke, chemist at the Agricultural Experiment Station at the University of Montana.

Measles are widespread and on the increase throughout the temperate zone, according to information collected by the health section of the League of Nations.—*Science Service Correspondence.*)

Thirty-one per cent of all hospital treatment in the United States in 1923 was given free and 19.3 per cent was only partly paid for.

THE ROCKEFELLER FOUNDATION

Review of Work in 1925

The Year in Brief

During 1925 the Rockefeller Foundation in spending \$9,113,730 through its departmental agencies, the International Health Board, the China Medical Board, the Division of Medical Education, and the Division of Studies (1), aided the governments of eighteen countries to combat hookworm disease; (2) gave funds to the budgets of organized rural health services in 220 counties in twenty-six American states and in eighteen districts in Brazil, Poland, Czechoslovakia, Austria, and France; (3) took precautionary measures against yellow fever in Salvador, Guatemala, Nicaragua, and Honduras; (4) continued to work with Brazil in freeing its northern coast from this disease; (5) sent a yellow fever commission to the west coast of Africa; (6) helped to show the possibilities of malaria control in twelve American states and in Brazil, Argentina, and Italy; (7) shared in the development of professional training of public health officers at Harvard University and the University of Toronto and in schools and institutes in London, Copenhagen, Prague, Warsaw, Belgrade, Zagreb, Budapest, Trinidad, and Sao Paulo; (8) contributed to the progress of medical education at Cambridge, Edinburgh, Copenhagen, Brussels, Utrecht, Strasbourg, Beirut, Singapore, Bangkok, Sao Paulo, and Montreal; (9) provided emergency aid in the form of literature and laboratory supplies for 112 medical centers in Europe; (10) maintained a modern medical school and teaching hospital in Peking with 195 students and eighty-seven teachers; (11) aided two other medical schools and nineteen hospitals in China; (12) helped to improve the teaching of physics, chemistry, and biology in three Chinese and seven foreign institutions in China and in the government university of Siam; (13) supported nurse training courses in Peking Union Medical College, Yale University, Vanderbilt University, and the George Peabody College for Teachers, and contributed to nursing education and service in Brazil, France, Yugoslavia, and Poland; (14) provided current funds for an Institute of Biological Research in the Johns Hopkins University; (15) assisted departments at Yale and Iowa State universities engaged in biological and mental research, and aided the Marine Biological Station at Pacific Grove, California; (16) provided, directly or indirectly, fellowships for 842 men and women from forty-four different countries, and financed the travel of fifty other persons either in commissions or as visiting officials and professors; (17) contributed to the League of Nations' international study tours or interchanges for 128 health officers from fifty-eight countries; (18) continued to aid the League's information service on communicable diseases; (19) made surveys of health conditions, medical education, nursing, biology, and anthropology in thirty-five countries; (20) lent staff members as advisers and made minor gifts to many governments and institutions; (21) assisted mental hygiene projects both in the United States and Canada, demonstrations in dispensary development in New York City, and other undertakings in public health, medical education, and allied fields.—Geo. E. Vincent.

There are about a half million different sorts of living creatures on earth and more than three-fourths of these are insects.

SYSTOLE

We cannot so act as to please all the world.
—Petrarch.

Politeness is benevolence in small things.
—Macaulay.

He who endures with patience is a conqueror.—Latin.

Play at small games rather than stand out.
—Shakespeare.

A hundred paths present a hundred difficulties.—Chinese proverb.

There is a place and means for every man alive.—Shakespeare.

He who cannot with his purse must pay with his hide.—German proverb.

Pearls and precious stones are not good to eat or drink.—Chinese proverb.

It is a fair degree of plenty to have what is necessary.—Shakespeare.

Plant the crab tree where you will, it will never bear pippins.—German proverb.

Set a peasant on horseback and he forgets both God and man.—Spanish proverb.

Peace would be universal if there were neither thine nor mine.—Italian proverb.

He who will not pardon others must not himself expect pardon.—Seneca.

A good pilot is not known when the sea is calm and the weather fair.—Danish proverb.

Nothing is more obnoxious than a low person raised to a high position.—Claudian.

Pigmies are pigmies still though perched on Alps, and pyramids are pyramids in vales.—Young.

DIASTOLE

Nothing to Live For

“Do you think I shall live until I’m ninety, doctor?”

“How old are you now?”

“Forty.”

“Do you drink, gamble, smoke, or have any vices of any kind?”

“No. I don’t drink, I never gamble, I loathe smoking; in fact, I haven’t any vices.”

“Well, good heavens, why do you want to live another fifty years?”—Illinois Medical Journal.

Deception

“Whosoever attracts into the bonds of marriage any male subject of His Majesty by means of rouge or powder, perfumes, false teeth, false hair, steel corsets, hooped petticoats, high heels or false hips, will be prosecuted for sorcery and the marriage will be declared null and void, if the accused is convicted!”—Old French statute.

Snapshot Diagnosis

Doctor: “What you need is more exercise—exercise that will speed up your sluggish circulation. What is your occupation?”

Patient: “I’m a piano lifter.”

Doctor (gazing profoundly into vacuity): “Well—er—er until you call on me again, try lifting two at a time.”—Better Health.

How Careless

Wife: “Baby has swallowed all the ink in the inkpot! Whatever shall we do?”

Hubby (reading:): “Write with a pencil, I suppose.”—Exchange.

A Chinaman was extolling his doctor Sing Hi. He said: “Me velly sick. Me get Dr. Lo Yen. Takee much medicine, more sick. Me get Dr. Kang Hu. Takee more his medicine. More sick, think me going die. Me callee Dr. Sing Hi. He busy, no come; me get well.”

MEDICAL SOCIETIES

COLORADO GENERAL HOSPITAL

The month of September has seen the average amount of activity as was reported for the summer period. The weather has been up to Colorado standard, and sickness not so prevalent, as may be expected in the coming winter months. These conditions cause a variation in the attendance to this institution, more marked in the case of the Out-patients' Department.

For the past month the following figures as compiled by the superintendent's office, tell the story of the institution's activities:

Patients in hospital September 1.....	71
Patients admitted during September.....	140
Newborn included in the above.....	6
Patients discharged during September.....	135
Patients dying in hospital during month.....	3
Autopsies performed.....	1
Patients in hospital October 1, 1926.....	77
Counties represented.....	23
Average length of stay in days.....	12.6

The Oto-Laryngology service again leaves with the largest number of patients, with general surgical and medical services next in numbers. The other services do not show the totals in attendance that we see in the above, but all are active.

In the Out-patients' Department the average daily attendance for September was 94. In all, 2,445 patients treated, of which 335 were new cases. And in addition, 77 persons were denied admission to the clinics. It is surprising the number of people who seek admittance who are financially able to pay a private physician, and who have no idea of the purposes of the clinic.

The hospital and associated groups were well represented at the recent meetings of the Colorado State Medical Society and the Colorado Hospital Association, at Colorado Springs. The different groups took part in the educational exhibits which occupied part of the floor space of the auditorium. These consisted in part of a very comprehensive resume of the malarial situation by maps, charts and pictures; display of some of the common tapeworms of man; methods for the estimation of haemoglobin; incidence of Rocky Mountain spotted fever in Colorado, and an extensive pictorial display of the various parts and activities of the institution. They were unfortunately not grouped together; but, however, did help to bring to the attention of the medical profession the possibilities of the institution. Favorable comments were heard on the exhibit, and numerous inquiries made concerning future clinics. Of this, more will be said at a later time.

E. R. MUGRAGE.

COLORADO PSYCHOPATHIC HOSPITAL

The figures which are given out by the director's office for each month's activities have had such a similarity of late that they are not interesting, except that they do show these activities. This is also true of the past month, but beneath this sameness of cold figures are the variegated activities, which do not show, and which cannot be said to resemble those of another month except in general:

Patients in hospital September 1, 1926.....	59
Patients admitted during the month.....	37
Patients discharged during the month.....	37

Patients dying during the month.....	2
Autopsies performed.....	2
Patients in hospital October 1.....	57
Patients sent to Pueblo.....	1
Counties represented.....	13
Patients from out of state.....	1

On the first of October 31 men and 26 women were in the institution under treatment. In the past attention has not been called to the fact that neighboring states were availing themselves of the advantages offered by this institution.

Members of the State Medical Society and others who saw the exhibit of this institution at Colorado Springs were very agreeably surprised at the display. The Department of Occupational Therapy showed many examples of work, with merit, put out by different patients, and as shown by an accompanying short history, beneficial to the individual in his endeavor to regain confidence and co-operation with society in general. This exhibit was not especially prepared for the occasion, as examples of similar work are constantly being carried on in the shop.

The exhibit of pathological conditions of the brain were also well worth the time devoted to their inspection. These are on permanent exhibit at the institution, and are being added to constantly, so that in time a collection will be gathered together worthy the attention of all interested in this field.

E. R. MUGRAGE.

WOMAN'S AUXILIARY OF THE COLORADO STATE MEDICAL SOCIETY

The Woman's Auxiliary of the Colorado State Medical Society met in annual session at Colorado Springs, September 21, 22, and 23, 1926.

The business of the Executive Board was transacted on the morning of September 21.

In the evening the members were guests at the Annual Reception of the Colorado State Medical Society.

The annual meeting was held in the Parlor of the Antlers Hotel on the morning of September 22, with fifty women present. At this meeting officers for the coming year were elected. The meeting then adjourned, in order that members might attend the annual luncheon at Bruin Inn.

Many of the members took advantage of the opportunity to make the trip to the inn over the Corley Highway. More than one hundred guests were present at the luncheon. Speakers included Mrs. F. L. Dennis of Colorado Springs, Mrs. F. P. Gengenbach of Denver, Mrs. H. A. Smith of Delta, and Dr. Morris Fishbein of Chicago. Several poems were read by Mrs. L. A. Miller of Colorado Springs, and a monologue was given by Miss Margaret Timmons of that city. Music was furnished by Miss Ida Blackman and Mrs. Florence Purdy of Colorado Springs. A vote of thanks was tendered the Colorado Springs women for their gracious hospitality throughout the session.

In the evening of September 23 the women were the guests of the State Society at the annual banquet and ball at the Broadmoor Hotel.

Officers for 1926-1927 are as follows:

President, Mrs. F. B. Stephenson, Denver.

President-elect, Mrs. C. S. Morrison, Colorado Springs.

First Vice President, Mrs. L. E. Likes, Lamar.

Second Vice President, Mrs. G. H. Curfman, Sallida.

Third Vice President, Mrs. A. C. McClanahan, Delta.

Fourth Vice President, Mrs. O. M. Gilbert, Boulder.

Corresponding Secretary, Mrs. T. M. Burns, Denver.

Recording Secretary, Mrs. S. W. Schaefer, Colorado Springs.

Treasurer, Mrs. Crum Epler, Colorado Springs.

Social Secretary, Mrs. T. R. Knowles, Colorado Springs.

Auditor, Mrs. J. A. McCaw, Denver.

Parliamentarian, Mrs. C. N. Meader, Denver.

ELINOR BLUEMEL,

Recording Secretary.

NEWS NOTES

The plans of Doctor Ernst Löwenstein to visit Denver at the invitation of the Denver Sanitarium Association have had to be changed at the regret of Dr. Lowenstein and the disappointment of Colorado physicians.

The International Union of Tuberculosis recently held a very important meeting at Washington. This assemblage was immediately followed by the annual meeting of The National Tuberculosis Association. Dr. H. J. Corper read a paper before the latter organization and Dr. Henry Sewall was elected president for the coming year. Among other doctors who were there were Dr. James Waring, Dr. Saling Simon, Dr. I. D. Bronfin, Dr. Felix Baum of Denver. Colorado Springs was represented by Dr. Gerald Webb, Dr. A. F. Forrester, Dr. S. W. Schaefer, and Dr. E. D. Downing.

Dr. C. T. Burnett has just returned from the meetings of the Interstate Graduate Assembly in Cleveland.

Dr. and Mrs. J. R. Arneil, Dr. and Mrs. Fosdick Jones and Dr. and Mrs. L. B. Lockardt have just returned from a vacation spent in the historic and picturesque Rio Grande Valley near Santa Fe.

Dr. D. N. O'Rourke writes that he and Mrs. O'Rourke are enjoying their trip abroad even more than anticipated.

Dr. Harry Finney has just returned from a clinical trip in which he visited Philadelphia, Baltimore, New York and Boston.

The American Society of Clinical Pathologists has instituted a Service Bureau which it is hoped will be utilized by hospitals, institutions or clinics in need of a qualified clinical pathologist. Physicians qualified in this specialty and are not placed, are requested to register their names with this Bureau. Dr. Robert A. Kilduffe, Atlantic City, N. J., is the Chairman of the Service Bureau. Information regarding any matters within the scope of this Bureau may be obtained from either Dr. Ward Burdick, Children's Hospital, Denver, Colo., or Dr. E. R. Mugrage, 4200 E. 9th Ave., Denver, Colo.

Dr. Samuel Swezey, formerly medical director of the National Jewish Hospital for Consumptives of Denver, has announced the opening of an office in Los Angeles.

The editor is completely devoid of any occult power in securing news notes. It would be of great value if our members would overcome their extreme modesty and report their important doings and those of their friends.

For Prof. B. S. Hopkins of the University of Illinois has isolated the hitherto unknown element 61 after detailed chemical work extending over several years.

BOOK REVIEWS

Electrothermic Methods in the Treatment of Neoplastic Diseases. Designed as a practical handbook of surgical electrotherapy for the use of Practitioner and Students. By J. Douglas Morgan, B.A., M.D., Formerly Radiologist, Ross Pavilion, Royal Victoria Hospital, Montreal; Instructor in Radiology, University of Pennsylvania, Graduate School of Medicine. Illustrated with 36 Line and Half-tone Engravings. Philadelphia, F. A. Davis Company, Publishers. 1926.

Dr. Morgan, a personal friend of the reviewer, has had experience preparing him unusually well to be the author of a book on this subject.

The old prejudices, rightly formed, against the flamboyant and groundless claims for electrotherapeutics have ceased to exist and as the author says about the use of electrodesiccation and electrocoagulation, it "is allotted its proper place and its proportional values are recognized". This work therefore is particularly timely.

Dr. Morgan's study is published in a book of 172 small pages. The subject matter is divided into nine chapters and clarified by thirty-six illustrations and diagrams.

In the first three chapters the beginner is introduced to the subject of electricity as applied in electrothermic methods and given an organization and definition of terminology.

Thereafter follows a description and an explanation of the use of the latest kind of apparatus. The proper selections of current and the technique of treatment in the various kinds of diseases amenable to desiccation and electrothermic coagulation. The author gives full value to the use of surgery, radium and x-ray where indicated in the treatment of neoplasms.

Considerable attention is paid to the general management of the patient throughout the treatment period.

This is a valuable book for anyone interested in the treatment of superficial malignancy.

KENNETH D. A. ALLEN.

The Peaks of Medical History. An Outline of the Evolution of Medicine for the Use of Medical Students and Practitioners, by Charles L. Dana, A.M., M.D., LL.D., Professor of Nervous Diseases, Cornell University Medical College, late President of the New York Academy of Medicine, etc. Illustrated with 40 Full-Page Plates and 16 Text Illustrations. Paul B. Hoeber, Inc., New York, 1926. Price, \$3.00.

Knowledge regarding the activities of master men of the past serves as a great stimulus for us of the present and will always remain the standard by which we measure our progress in the medical sciences from the time of Hippocrates to the middle of the nineteenth century. One of the rare qualities of the book is the atmosphere and keen insight into the character and reputation of each great physician described, enumerating just what he contributed to the advancement of medicine.

The rise and fall of medicine from Hippocrates to Jenner is given in a one-page outline showing the six peaks of medical history, and gives the important transitions from one theory to another and indicates when the greatest contributions were made to the medical sciences.

Illustrations from the writings of the ancients add much to the charm of the book.

WILFORD W. BARBER.

Medical Clinics of North America. Issued serially, one number every other month. Volume IX, Number VI, Chicago Number, May, 1926. Octavo of 202 pages, including complete Index to Volume IX, with 24 illustrations. Per Clinic Year, July, 1925, to May, 1926. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company.

Elliott and Nadler give detailed reports on four cases of advanced pulmonary tuberculosis complicated by diabetes. If by means of a balanced diet containing a relatively large amount of fat in safe proportions to the available glucose enough calories can be furnished to maintain the patient's weight, and by means of sufficient insulin the endogenous supply can be augmented to insure the utilization of the carbohydrates given. The prognosis of such patients can be greatly improved.

Pollock advocates for the student not so much to commit to memory the signs and symptoms of various neurologic conditions, but to know the basic anatomy and physiology of the central nervous system. He illustrates his clinic talk with some original photographs, of some of the more important neurologic conditions.

Strause and Daly present four cases of pregnancy complicated by diabetes, one of which apparently showed no evidence of diabetes when not pregnant. Results were good when proper dietary management, at times supplemented by insulin, were instituted.

Hamill in a lengthy article reports fourteen cases of alleged disability in cases where damages were sought by patients for disabilities that were not visible to the physician but depended upon the patient's own allegation. Hamill analyzes these cases carefully and this analysis will be of interest to almost every physician and surgeon because we all meet with similar ones, especially in prospective damage cases.

Bachmann discusses sensibly the basic points in the prevention of heart disease in children. Most of us will agree with him in the statement that removal of tonsils is not a panacea in the prevention of heart disease. He calls attention to the prevention and proper treatment of rheumatism and chorea, frequent forerunners of heart disease in the young and frequent checking of the heart in these conditions. Also the experience of most of us will coincide with his in the fact that not every heart murmur is foregone proof that organic heart disease exists, but often such systolic murmurs are due merely to a relaxed heart muscle.

OTTO S. KRETSCHMER.

Principles of Human Physiology. By Ernest H. Starling, C.M.G., F.R.S., M.D., ScD., F.R.C.P. Foulerton Professor of the Royal Society, Late Jodrell Professor of Physiology in University College, London. The Chapter on the Sense Organs Edited by H. Hartridge, M.A., M.B. (Cantab.) Fourth Edition. With Five Hundred and Seventy Illustrations, Ten in Colour. Price, 8.50. Philadelphia. Lea & Febiger, 600 S. Washington Square.

This fourth edition of over one thousand pages contains entirely too much material to be adequately covered by an ordinary book review. Aside from containing all of the known facts of physiology set forth in a clear text book style, it contains many theories of physiological processes. While the author seems to apologize for the bringing out of a new text book only after the lapse of a five-year interval he rightly contends that the advance in physiology has been so rapid that al-

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most every chapter of the book has been revised and in many cases rewritten. Our new knowledge in the metabolism of carbohydrates due to the discovery of insulin is an example. While apparently intended as a text book there are few recent books from the press more interesting and helpful to the physician in any line of medicinal practice than this last edition of Starling's Physiology.

C. F. KEMPER.

Collected Papers of The Mayo Clinic and The Mayo Foundation. Edited by Mrs. M. H. Mellish, H. Burton Logie, M.D., and Charlotte E. Eigen Mann, B.A. Volume XVII, 1925. Published May, 1926. Philadelphia and London: W. B. Saunders Company. Cloth, \$13.00.

It is the purpose of a book review to inform the reader about what the book contains and, as well as the reviewer can, to assess the value of its contents. To accomplish such a purpose in the presentation of a book of this kind would task the capacities of the most versatile because of the varied character of the subjects treated. The best review of such a book would be to publish its table of contents. Even that would be quite too long and would be without the interest which might attach to the views of the reviewer, if it should happen unexpectedly that he has any interesting opinion about the book. The selection of any of the papers in this volume for particular comment would show the inclination of the reviewer rather than the character of the book reviewed. It might be fair to call attention to those papers which treat of subjects which have been developed in this clinic and with which the fame of the institution is associated.

The writings of those connected with the Mayo Clinic on the surgery of the gastro-intestinal tract and on the surgery, function and pathology of the thyroid gland must certainly be received with all the respect and attention which pertains to authority. The paper by Balfour, "Fundamental Principles in Surgery of the Stomach and Duodenum," may not be left unread by anyone who does or aspires to do such surgery. It tells the surgeon in what direction he is going just as another paper by the same author, "Sequelae of Gastro-enterectomy," remorsefully reminds the surgeon where he has been.

The article on the "Function of the Thyroid Gland," by Plummer, is the best that could be written by anyone at this time. It is very helpful that some master should, from time to time, give us a summary of what is known about growing and important subjects. The paper is, indeed, rather heavy with theory, but that may be unavoidable at present. Soon we will know more about the thyroid, then theory will evaporate before the light and warmth of fact.

The paper on the "Influence of the Thyroid Gland on Oxidation in the Animal Organism," by Kendall, deserves to be noted. It is troubled with chemical complexities which the reviewer dimly understands and is here mentioned with the timidity arising from conscious ignorance.

The papers named are only samples of what may be found in this most recent volume from the Mayo Foundation. They may be very ill chosen samples but, fortunately, this volume has now a long line of ancestors and the reader may be able to judge the character of the book according to Mendelian principles.

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(Incorporated November 1, 1888.)

The next annual session will be held in Colorado Springs, September 21, 22, 23, 1926.

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Chaffee County—First Tuesday of each month; secretary, G. W. Larimer, Salida.

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TUNING IN

Boiled Water Used by Cyrus the Great

A Washington (D. C.) physician has called the attention of Health News to the fact that an error of about half a century was made in quoting the year during which Aristotle advised Alexander to boil the water he carried on his desert marches to prevent it getting sour (Health News, June 7, page 90).

Our correspondent then calls attention to the statement in Herodotus (Book I, Chap. 189) to the effect that Cyrus the Great, of Persia, on his military expeditions, carried with him boiled water from the Coaspes river in silver vessels on four wheeled wagons. As this ruler died about 530 B. C., it is apparent that for nearly twenty-five centuries military leaders failed to take advantage of this lesson which these ancient rulers had learned or to grasp its significance. The sanitarian has now come into his own in military affairs.—Health News.

Doctor of What?

The New York City Department of Health Weekly Bulletin for July 31 calls attention to a practice current among certain pharmacists of calling their stores "Doctor X's Pharmacy," a use of the title "doctor," which is often misleading to the public and one which places the proprietor open to suspicion of "counter prescribing." An instance is cited in the Bulletin where a doctor of pharmacy, being requested by a mother to give her "something" for her child with sore throat sold the woman a yellow mixture; yet he claimed that he never did any counter prescribing. Not until the second visit and request for "something" did he refer the child to a doctor of medicine when a "positive culture" was obtained from the throat.

The Bulletin says:

"There are undoubtedly other druggists who are guilty of like practice, and it is therefore not amiss to urge the organized pharmaceutical profession to concentrate in a drive against such offenders who discredit the great body of pharmacists by injuring the high repute and honor which the profession enjoys in the community."—Health News.

What Price Health?

"The biggest bill the taxpayer has to meet is due to the care of the sick; the biggest bill the individual has to meet in unhappiness, ineffectiveness and failure is due to that individual's lack of real health; both bills can be tremendously reduced by a well organized, well executed program of positive health."—Dr. Ellen C. Potter, Pennsylvania State Department of Health.

Stout Inheritance

The fat person who is active in habits and frugal in his diet is the one who furnishes the real problem in obesity, authorities say. Does the fat one carry out his fundamental exchange of energy more economically, with a large surplus of energy producing heat in the form of fat left over? Dr. Solomon Strouse of Chicago and his collaborators in a study of basal metabolism say that fat people conserve the body fat and thus acquire a surplus, while the thin use up their food fat instead of storing it.—Science Service.

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Sunlight and Health

The treatment of disease with sunlight, known today as heliotherapy, is as old as the science of medicine, but the scientific use of sunlight for certain forms of tuberculosis and for rickets is as new as the 20th century. If we look into historical medical literature we find, now and then, references to sun baths for the sick, but we find almost no mention of prevention of disease with sunlight. On the Island of Cos, in about the year 400 B. C., Hippocrates, the father of medicine, advised sun baths and built a temple to Aesculapius, the god of medicine, to serve as a solarium for his patients. From the time of Hippocrates until the beginning of the Dark Ages, Greek and Roman physicians continued to recommend sun baths for the cure of disease. In modern times heliotherapy has been practiced more or less in France since the end of the eighteenth century. The first specific use of sunlight for the treatment of tuberculosis was made by the physicians of Lyons about 1840, but it was not put on a sound, scientific basis until 1903, when Rollier opened his clinic in Switzerland. Today many hundreds of children and adults with bone and gland tuberculosis go to Switzerland to be treated with sun baths. After many years of experience Rollier has established a system of graduated sun baths which have as their ultimate goal thorough pigmentation of the skin of the whole body and not sunburn. The altitude in Switzerland insures a coolness of the air as well as great intensity of sunlight. The heat of the sun is useful in heliotherapy only in the winter and must be avoided at mid-day in summer even in the mountains. The best heliotherapy consists of light baths and not of heat baths, and may be practiced at any altitude or in any place where the sunlight is clear. This method of treating tuberculosis became so successful in Rollier's clinic that it has been initiated in all parts of Europe and this country. Switzerland is no longer the only place where tuberculosis children may be seen playing naked in the sun or lying on outdoor sun porches. In many parts of this country, whether at the seashore or in the mountains, just such scenes are common today.—Children's Bureau.

Palestine Holds Record for Gains in Preventing Disease

Measles bars the United States from holding the record of the world for good health, the health committee of the League of Nations reports. To that historic country, Palestine, whose health problems are complicated by hordes of pilgrims crossing its borders and the hundred thousand nomadic Bedouins that are reckoned a part of the shifting population of Palestine, go the honors for reductions in disease, particularly malaria fever. Palestine has made notable gains in preventing disease by a rigid system of health inspections.—The Red Cross Courier, June 15, 1926.

Ticks Decreasing

Federal, state and county forces are restricting the cattle tick to a gradually diminishing area in the South. During the active tick-eradication season, beginning in March and continuing to December, special attention will be given this year to completing the work in Virginia and South Carolina. The infested areas in these states are limited to three counties in Virginia and two in South Carolina. The success anticipated in these states will leave the Atlantic coast states free down to the north line of Florida.—Science Service.

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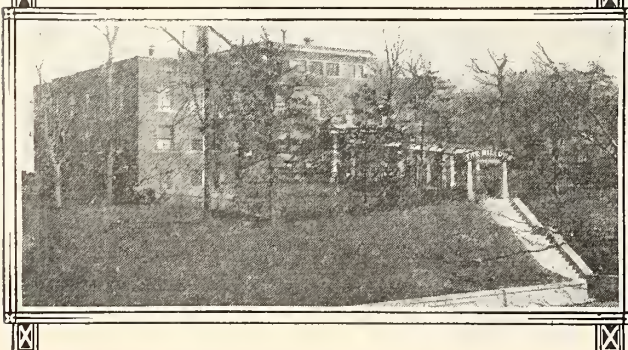
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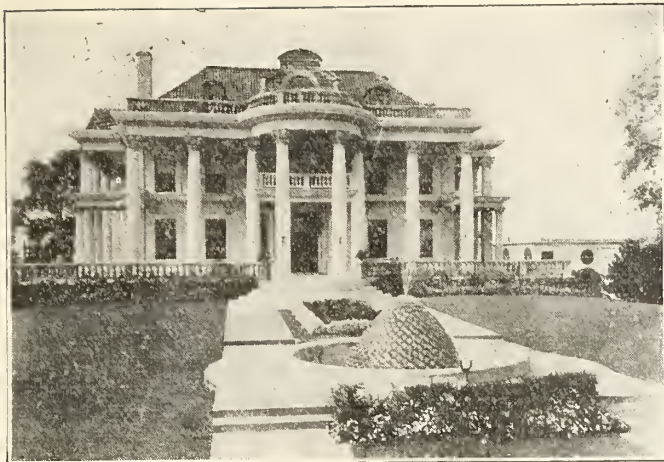
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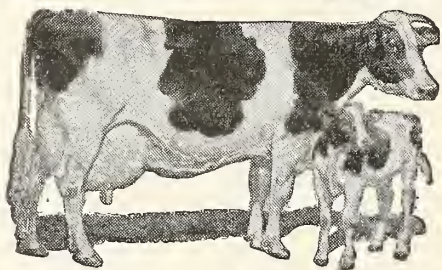
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Vocational Guidance

The importance of charting out a definite course for a vocational career and then steering by it is shown by a survey of office workers who applied for jobs at a typical employment bureau. Results of the survey, just reported by Dr. Harry D. Kitson, of Columbia University, show the educational and job histories of 684 applicants for work.

The most striking fact discovered was that 40 per cent of the men and 12 per cent of the women were dissatisfied with their choice of occupation and wanted to change to other fields of work.

Dr. Kitson states that the histories of such workers as these, none of whom had had guidance in selecting or planning their careers, constitute a plea for educational and vocational guidance.—Science Service.

Pueblo Safe

Just as medical men are bringing epidemics of diseases under control, so are civil engineers overcoming the menace of flood. And all who contributed to the relief fund administered by the Red Cross in the great disaster of five years ago at Pueblo, Colo., will read with satisfaction and pride the news that this courageous and enterprising city has now made itself safe. Mountain cloudbursts may rush down the valley, but Pueblo will stand confident and undismayed. The bed of the Arkansas river has been moved half a mile across the city, and now will carry away half again the volume of water that devastated the city and lower country during that great flood of June, 1921.

The channel of the old river, which traversed Pueblo in the depths of the valley, was narrow and crooked. Its capacity was 38,000 second-feet of water. When the flood came the river demanded a 100,000 second-feet. The new channel, cut straight and deep, can handle 150,000 cubic feet per second.—Red Cross Courier.

Abuse of Cesarean Section

Cesarean section is a life-saving procedure for both mother and child in cases where natural birth is impossible from physical malformation or in certain irremediable pathologic conditions. The popularity of the operation, however, within recent years in certain sections would raise the query whether in the hands of some obstetricians it has not become an operation of convenience rather than necessity. During his recent lectures in Spokane, Dr. J. Whitridge Williams, of Johns Hopkins Hospital, was very emphatic in the expression of his views in this regard. The fact that an individual has performed a series of Cesarean sections is no indication of superior skill or obstetric knowledge. Anyone possessing two hands, a scalpel, a needle and thread can perform a Caesarian section, but the obstetrician, who carries through to successful spontaneous delivery a woman with pelvic deformity or a subject of eclampsia or placenta previa, displays a high degree of professional acumen and is entitled to real commendation. When he encounters a practitioner who proudly announces that he has performed a series of twenty-five Cesarean sections, Dr. Williams replies, "You are a darned poor obstetrician."—Editorial, Northwest Medicine.

"Shades of opinion," Abraham Lincoln said, "May be sincerely entertained by honest and truthful men."

Colorado Medicine

Published by the Colorado State Medical Society and the Wyoming State Medical Society

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EDITORIAL NOTES AND COMMENT

TUBERCULOSIS AND CLIMATE

A few years ago when an attempt was being made to secure a large tuberculous sanitarium for Denver, a committee of one hundred representative business men was considering the wisdom of a move that would bring more tuberculous patients to this part of the country. The argument against it was that such patients were more of a community liability than an asset. Whereupon there was a call for a show of hands of those who had come west for health reasons only. This conclusively demonstrated that a large percent of this recognized community leadership had been acquired by such immigration and was therefore a community asset.

We have passed that stage where we believe that climate is the whole or even the chief factor in the cure of tuberculosis, but accumulating evidence more firmly establishes the belief that climate is an important factor and that those who can afford or can be given the advantage of other therapeutic aides do better in a favorable climate than elsewhere. Therefore, from the community as well as the individual viewpoint we are justified in urging such financially competent patients to seek our climatic aid.

But this in no way justifies the immigration of the poor from their meager home comforts and friends to a land of strangers. Such a move can only mean increased hardships for the patient and increased health hazards to our community. Better far to remain

at home under the care of interested friends, relatives and the obligated community charities than to be denied these things in a strange land for the sake of climate only. Despite this fact many misguided tuberculous paupers will come to our western cities seeking health, thus perpetuating a grave social medical problem.

Those in charge of the Municipal Tuberculosis Dispensary of Denver assert that the problem is simply appalling. They point out that funds are available to hospitalize only the most advanced cases and those only inadequately; likewise no suitable provision is made for the care of discharged patients. Registration of these infected patients and the anti-spitting law is not rigidly enforced. The downtown housing condition is characterized as impossible. This unjust burden that is thrown upon this community and the inability of the Health Department to cope with it is due, we are told, to a lack of sufficient funds. We are urged as physicians to make such representation to the city authorities as will induce them to provide such measures as are necessary to control our present tuberculosis problem in all its phases.

There are not two sides to this question, as is sometimes thought. Those who contend that Colorado should invite the financially competent are right.

Those who discourage the immigration of tuberculous paupers are equally right and deserve our support. We are talking about two problems which should always be kept separate.

MEDICAL DEFENSE

The crucial and all essential idea of any medical defense plan consists in the defense of any physician who may be the object of an unjust suit for alleged malpractice.

No fair medical defense can be constructed upon the idea of defending the physician, be he right or wrong. Such an effort is bound to result in failure before the court, jury and public at large.

The prime object of a State Medical Society defense is to decrease and discourage litigation, to effect a better feeling and understanding between physicians themselves, and the general public.

To the under dogs of the legal profession the discouragement of litigation would not be a happy thought; but the real members of that profession would say aloud, "Amen," because no lawyer worthy of his profession will take a blackmailing ease against a member of the medical profession who has used his best judgment and who possesses the knowledge and follows the practices of the average member of his profession.

The State Medical Society adopted our present medical defense amendment and began the defense of its members July 1, 1922.

Since that time our Society has grown in membership and the defense fund has now reached such a sum that real defense can be given any cases that the Society may be called upon to defend.

Recently the Medical Protective Company of Fort Wayne, Indiana, notified some of the members of the profession in Wyoming that they would not renew their policies as the company was withdrawing from doing business in Wyoming and giving as their reason for withdrawal the small amount of business done. They have, under date of October 28, written that they have reconsidered the matter and have decided to continue business in Wyoming.

This decision is highly pleasing to their many friends throughout the West. To the old policy holders who have paid into the company for years without asking for any defense by the company this favorable ac-

tion in continuing business will come as a pleasant surprise.

In as much as the State Medical Society cannot assume to pay judgments against its members, if this ever should occur, there is reason and necessity for such insurance which carries with it the paying of judgments. The different old-line life insurance companies supply this form of insurance and every member of the medical profession is foolish who neglects to so protect himself.

The underlying foundations of a state medical defense must ever be, "We do not in any way propose to aid in defeating any just claim which any person may have against any member of the Society, but simply to protect our members from unjust suits."

With such a statement we can go into the merits of all cases presented and after a fair and unbiased investigation revealing conditions worthy of defense proceed with the assurance that right and justice are on our side. But what is the situation of a doctor who is guilty of malpractice? So far as the State Society Medical Defense is concerned, he will be told to settle his bill like a man, as he should do. That's the only fair way. He should expect nothing else from our Society. This ought to increase the feeling of fairness among the profession and the general public. Ours is not a "Medical Trust," but a Society of scientific and qualified medical men bound together in the common cause of humanity, but not to protect members who are justly liable for their neglect, carelessness or wilful wrong doing.

We will fight to and through the Supreme Court any case worthy of defense, and that means where justice is on our side. The decision in all cases of this all important question rests first with a committee of the local county Medical Society, consisting of the President, Secretary and one member selected by the physician who is threatened with a malpractice suit. If their decision is favorable, their report is sent to the State Medical Defense committee for final decision.

If the local committee report should be unfavorable, the physician can appeal to the

state committee, whose decision is final. With such a committee, composed of men with good judgment and supplied with the best legal talent, fairness and justice ought to be given to all members and the public at all times. Nothing else will be fair. Justice is all that any honorable member of our profession desires. The defendant rests.

E. W.

A MILLION DOLLARS FOR ONE CENT

Read on, good doctor, my florid title is not a catch, though it may be but subconscious imitation of my too abundant third-class mail forensics.

The tiny paper rectangle issued by the Government and known as a postage stamp has the uncanny gift of transporting some thousand times its own weight to any part of the United States. The magic carpet of the Arabian Nights story has nothing on that. Now I beg to bring your attention to another and a still more wonderful sticker. It is called the Christmas Seal.

This is also a stamp, whose pretty face changes fashion every year, and is sold for a single cent. It may be confidently affirmed that this tiny strip of adhesive paper maintains a commissariat of health throughout the country, which is the most astonishing free will organization in history. Through it each of our forty-eight states is dotted with communicating foci activated by trained workers whose business and joy it is to teach people how to avoid the evils of contagion; how to bring to normal standards the constitutionally deficient child; and thus by regulation of external adversities bring happiness. It is no mere figure of speech to credit the Christmas Seal with powers of transport into the minds and hearts of people.

At the present time the seals are designed, printed and distributed by the National Tuberculosis Association with headquarters in New York City. Each commonwealth has its State Tuberculosis Association, with a greater or less number of subsidiary associations, which form the working body of which the National Association is the center.

Through its board of directors, who represent every section of the country, the National Association adapts its policies to the welfare of all the people.

More than a billion seals are issued each year. The receipts from the sales reach into millions of dollars. Five per cent of the revenue reverts to the National Association. The funds thus acquired serve to maintain the administration, to support various publications, including the Transactions, the Journal of the Outdoor Life and the American Review of Tuberculosis; and also to finance various problems of original research on tuberculosis, which are today coordinating the best thought among some of the best trained scientists in America.

It is a matter of record that during the past twenty years the general death rate from tuberculosis in the United States has been reduced about 55 per cent. It may be a mere coincidence that the period during which this result developed measures the age of the National Tuberculosis Association. However this may be, my medical colleagues will agree that when in a case of desperate illness a great improvement follows a certain treatment, they do not hesitate to again apply that treatment under similar circumstances whether they understand its action or not.

But, lest we forget to gird ourselves for today's fight, I am constrained to report a somewhat shocking result of a recent statistical survey of this subject conducted by the National Tuberculosis Association. It was found, namely, that when we consider the tuberculosis mortality by age groups, for the ten year period from 1913 to 1923, though the general mortality from tuberculosis was reduced 36 per cent, for the age group between 15 and 24 years, the reduction rate was but half of that, or 18 per cent.

By another coincidence it appears that the strenuous application of anti-tuberculosis measures had been restricted to infants and to invalid adults. School children and college students had been relatively neglected.

Paradoxical as it may seem, Colorado, the health resort and playground of the country, has the highest mortality rate from tuber-

culosis among all the states in the registration area! No need to offer explanations; the fact remains that our people, our children are unfairly exposed to the ambulant, not to say the bed-ridden consumptive. How inadequate are the means for segregation and care of these invalids!

If you buy seals enough this condition may be remedied. One of your dollars spent on Christmas Seals gives 95 cents to anti-tuberculosis work in Colorado and five dollars spends \$4.75 here.

H. S.

COLORADO MEDICINE FOR 1927

Beginning with Volume XXIV the Journal will be divided into two distinct sections for the conveniences of the two states it represents. The Wyoming section will be edited by Dr. G. M. Anderson of Cheyenne. Such arrangement bids fair to be much more satisfactory to both state societies than the one in use for the past year. Successful precedent is to be found in the Atlantic Medical Journal, the official organ of Pennsylvania and Delaware.

THE LYMPHATIC SYSTEM AS A DEFENSE MECHANISM*

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Abstract

All of the newer work in the experimental field seems to negative the idea, so long prevalent, that the chief function of the lymphatic system is a defense mechanism for the body.

Work from our laboratory seems to prove that the "germe center" in the lymph node is in no sense a germinal center for new cells; it is farthest removed from the nutrition of the blood vessels and as a result is made up of old and degenerating cells. When bacteria or other particulate matter enters the lymph node, it becomes lodged in these cells which possess the least vitality. At least in the nodes, phagocytosis is an indication of senescence rather than purposeful defense. Experiments on behavior of particulate matter thrown into the peritoneal cavity present some very definite facts concerning absorption which in no sense support the idea that the peritoneum is a part of the lymph system concerned with defending the body against invasion.

The principal avenue of egress for the larger particles, up to the size of a red blood cell, is through the peritoneum of the diaphragm into the lymph channels which are confluent of the four channels which pass upward on the inner chest wall, lateral to the

sternum and vertebra, converging in the superior mediastinal nodes. The efferents of these nodes enter the large neck veins with or through the lymph channels of the neck.

A less amount of absorption of particulate matter is by way of the greater and lesser omenta directly into the portal vein. We have found no evidence that either the parietal or visceral layers of peritoneum, aside from the regions mentioned, acts as an absorbing surface unless it has been seriously traumatized.

In no case have we found that the thoracic duct plays any part in carrying either fluids or particulate matter from the peritoneal cavity. Experimenters who have recovered material thrown into the peritoneal cavity from a thoracic duct fistula in the neck have erroneously assumed that it was carried by that vessel from the cavity. In no instance have we found any but the most distal portion of this channel stained with dyes used to mark the paths of absorption.

All of the evidence at hand seems to suggest that if there is an extension of infection from the appendix to the gall bladder such infection is blood born. Numerous experiments strongly suggest that there are no possible lymph channels to furnish a direct communication between the two viscera and the possibilities of "retrograde" lymph flow from the nodes around the superior mesenteric artery are, to our minds, very remote.

*Read at the fifty-sixth annual meeting of the Colorado State Medical Society, Colorado Springs, Sept. 21, 22, 23, 1926.

THE ROLE PLAYED BY EPITHELIUM IN INFECTIONS OF THE CONJUNCTIVA AND CORNEA*

(A Possible Explanation of the Vagaries of Inflammation in Other Mucous Membranes.)

WILLIAM C. FINNOFF, M.D.
DENVER, COLORADO

From the Department of Ophthalmology, University of Colorado

An understanding of the *modus operandi* of any diseased process is essential before advances can be made in treatment. Therapeutics based on a clinical diagnosis without some knowledge of the pathological changes that are taking place is of little value and leads to empiricism.

In the past our conception of inflammations of the mucous membranes has been a hazy one, and we have been unable to explain the reason for an absence of microorganisms in the secretions in many instances. However, we have not hesitated to treat these cases.

It is for this reason that I wish to present to you the discoveries of Karl Lindner¹ of Vienna. I believe that his observations in ocular conditions might apply to inflammations of the mucous membranes when bacteria seem to be absent.

While studying the conjunctiva in cases of trachoma, Lindner was struck by the frequency with which contaminating bacteria were found in epithelial cells. In the beginning, he attached little importance to this fact, but it gradually dawned upon him that this phenomenon was of importance, and he began to check it with his clinical findings.

He observed that in chronic processes bacteria were seldom found in the pus or desquamated epithelial cells. He also noted that early in acute inflammations of the conjunctiva, bacteria were present in the epithelium in great profusion several days before they appeared in the secretion. They were usually confined to the epithelium and were rarely found in the submucosa.

From these facts, he evolved the theory that bacteria which infect the conjunctiva and cornea are epithelial parasites; that they thrive on the epithelium, liberate their tox-

ins and exert their harmful influence from this strategical point.

The bacteria lodge on the surface of the conjunctiva, in one or several places, and form small plaques (Fig. 1). If the epithe-



FIG. 1. Plaques of Gonococci on Surface of Epithelium.

lial cells are resistant, further development of the micro-organism does not occur. But, if the natural immunity of the cells is low, the bacteria multiply, penetrate the cell wall (Fig. 2), and in addition invade the cement substance between the cells (Fig. 3). As the bacteria grow they produce toxins which through chemotaxis calls out the products of inflammation that are: First, blood serum, then, serum mixed with fibrin and later leukocytes (pus). The exudates come from the blood vessels in the submucosa which is not invaded by bacteria, and pass through the epithelium before reaching the conjunctival surface. In its passage through

*Read at the fifty-sixth annual meeting of the Colorado State Medical Society, Colorado Springs, Sept. 21, 22, 23.

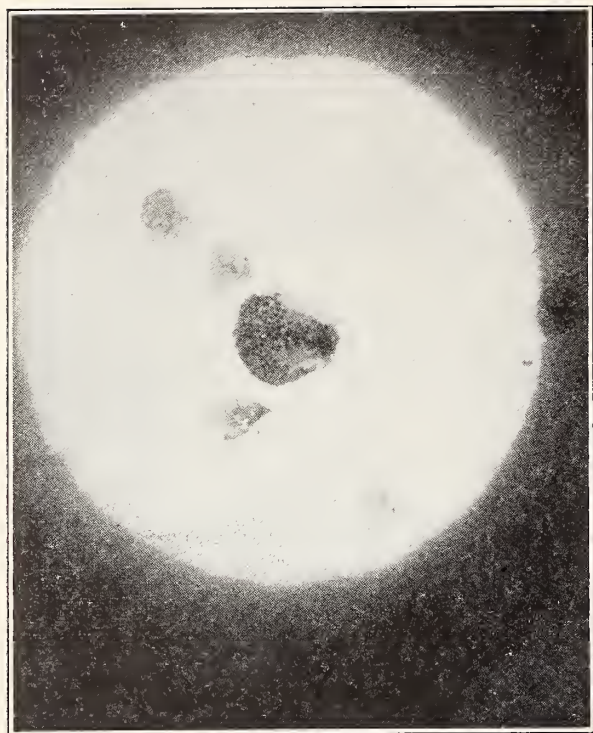


FIG. 2. Showing Bacteria in Protoplasm of Cell. (Gonococci).



FIG. 3. Bacteria Invading the Spaces Between the Cells. (Koch-Weeks Bacilli).

the epithelial layer the exudates separate the epithelial cells and give the bacteria easy access to the deeper layers. The organisms invade the fissures rapidly and attack the deeper epithelial cells (Fig. 4). They may invade

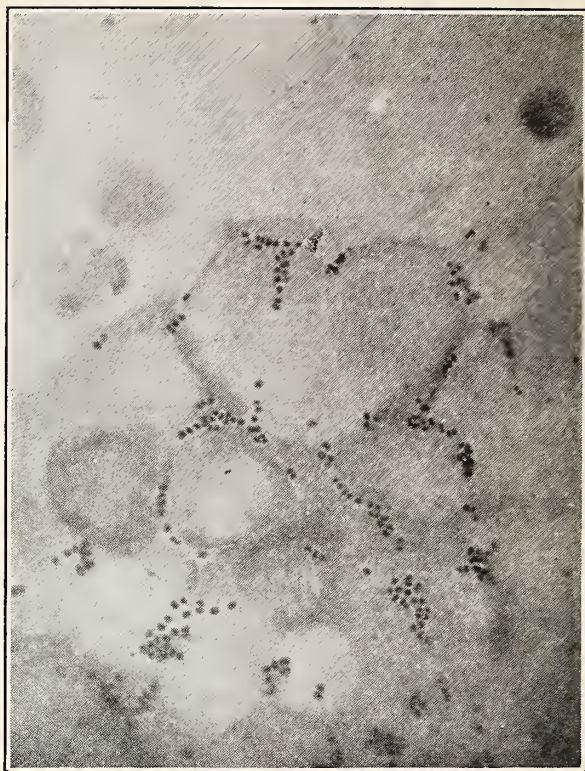


FIG. 4. Section Through Conjunctival Epithelium Showing Bacteria Invading Deeper Layers (Gonococci).

the whole layer and cause extensive destruction, or the cells may have enough resistance to retard their progress. The dead epithelial cells and bacteria are carried to the surface by the secretion, and they may then be demonstrated in stained smears. In the early stage, however, the bacteria are so adherent to the epithelial cells that they can not be dislodged and carried to the surface by the secretion. It is only in the advanced stage of the disease that they can be found in smears taken in the customary manner. Late in the disease they disappear from the secretion before the termination of the inflammatory process. However, they can be demonstrated in smears that contain epithelial cells that have been scraped from the surface of the conjunctiva. This is also true of the early stage. Therefore, the popular conception of conjunctival inflammations is probably incorrect. We have believed that the inflammation was due to the bathing of the conjunctiva with infectious microorganisms and that their presence in the secretion was of great importance. Lindner's findings seem to prove that these bacteria are epithelial parasites and it is to the epithelium that we must direct our attention.

It is not difficult to obtain smears, if one is careful in thoroughly anaesthetizing the mucous membrane. In the conjunctiva this is accomplished by two instillations of 4 or 5 per cent cocain at five-minute intervals and one instillation of 10 per cent cocain. In five minutes the lids may be everted, the surface cleansed with a sterile cotton swab and a layer of epithelial cells removed with a sterilized platinum spatula or a scalpel. The best method of sterilizing the instrument is in the flame. In removing the cells one should be careful not to go too deep and draw blood. Bleeding is objectionable because it prevents the making of subsequent smears from other areas and opens channels for deep infection. If bleeding occurs one has passed through the epithelial layer and exposed the submucosa.

The smears may be fixed either by the dry or wet method. For diagnostic purposes, ordinary flaming or air drying before staining is sufficient. Either Loeffler's methylene blue or Grams stain may be used. To study bacteria in the cells one must employ the wet method of fixation, which is as follows:

"The important thing in the technic of wet fixation is not to allow the specimen to dry in the least. Specimens should be transferred to the fixing fluid and from one solution to the next in an interval of only a second or two

"The scrapings are spread on a cover glass in the usual manner and the cover glass is quickly placed specimen side down into the following solutions.

Cubic Centimeters

- (a) Ten cc. concentrated sublimate solution.
20 cc. 95 per cent alcohol.
Keep specimen in this mixture for one-half hour.
- (b) Transfer to 30 per cent alcohol, two hours.
- (c) Transfer to 50 per cent alcohol, two hours.
- (d) Transfer to 70 per cent alcohol, twelve to twenty-four hours or more.
- (e) Transfer to 80 per cent alcohol to which a few drops of Lugol's solution has been added, sufficient to give the solution a slight yellow color, twelve to twenty-four hours. (The Lugol's solution is added in

order to remove the mercury in the fixing mixture.)

- (f) Transfer to 95 per cent alcohol, twelve to twenty-four hours or more. (If more, change alcohol each day.)
- (g) Transfer to the Giemsa or to Lindner's contrast stain for one to four hours.
- (h) Wash quickly with absolute alcohol.
- (i) Wash quickly with xylol—not necessary to dry afterwards (only shake of excess xylol).
- (j) Mount immediately on a slide, upon which a drop of cedar oil has been placed. Canada balsam should not be used.)
- (k) Examine."

It is by the latter method that Lindner¹ and later Howard² observed that epithelial cells had phagocytic properties, and that bacteria were digested by them. They demonstrated organisms in various stages of disintegration in the epithelial cells. In an editorial on this subject, Jackson³ stated that this observation is of almost as great importance as the discoveries of Metchnikof, because it proves that many cells are probably as capable as the polymorphonuclear leukocytes, in carrying on phagocytosis.

Quoting Jackson, "The epoch making discovery of Lindner, that the bacteria which cause conjunctivitis are epithelial parasites, is now adequately set forth in English by Dr. Howard. With it is presented, for the first time, Howard's equally startling observation, that under the stimulus of emergency, the younger epithelial cells of the conjunctiva become phagocytes, and ingest and destroy the invading bacteria, assuming a function hitherto recognized as chiefly belonging to leukocytes.

But the bacterial poisons, spreading to the deeper layers of epithelial cells, arouse them to rapid proliferation. These deeper layers rapidly thicken until the more superficial cells, carrying their bacterial turf, are thrown off. Meanwhile, the young epithelial cells that replace them are endowed with a certain immunity. They are not favorable hosts for the invading bacteria; and as Howard shows they become phagocytes devouring, killing and digesting the bacteria."

We have known for many years that diphtheria bacilli remained confined to the superficial layers of mucous membranes, but we have failed to investigate further to determine whether other organisms had similar

tendencies. Lindner found that, in addition to the diphtheria bacillus, the gonococcus (Fig. 5), Koch-Weeks bacillus (Fig. 6), Morax-Axenfeld bacillus (Fig. 7), the pneumococcus, and others had similar properties. The

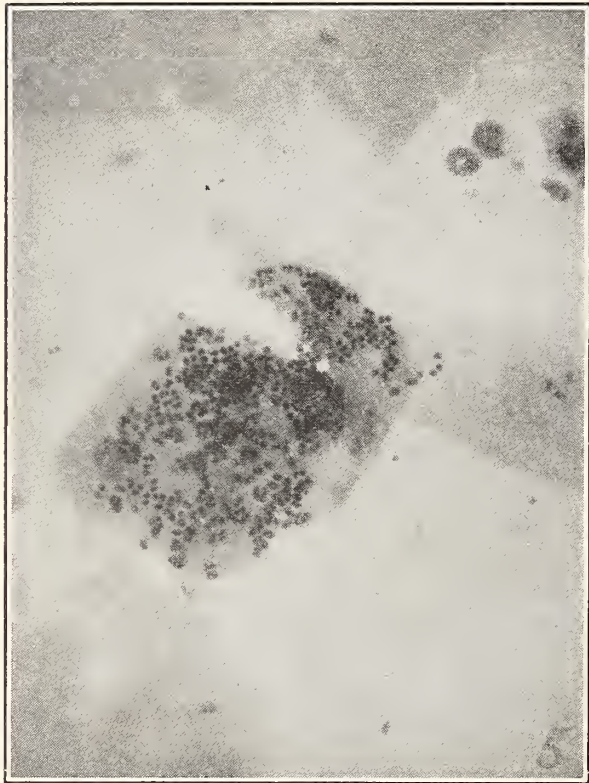


FIG. 5. Gonococci Invading Conjunctival Epithelium.

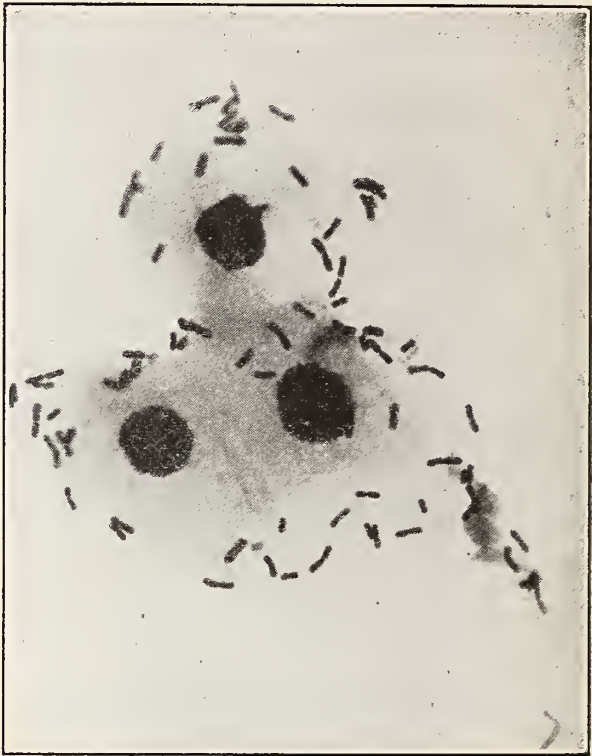


FIG. 7. Diplobacilli of Morax-Axenfeld



FIG. 6. Koch-Weeks Bacilli in Epithelial Cell.

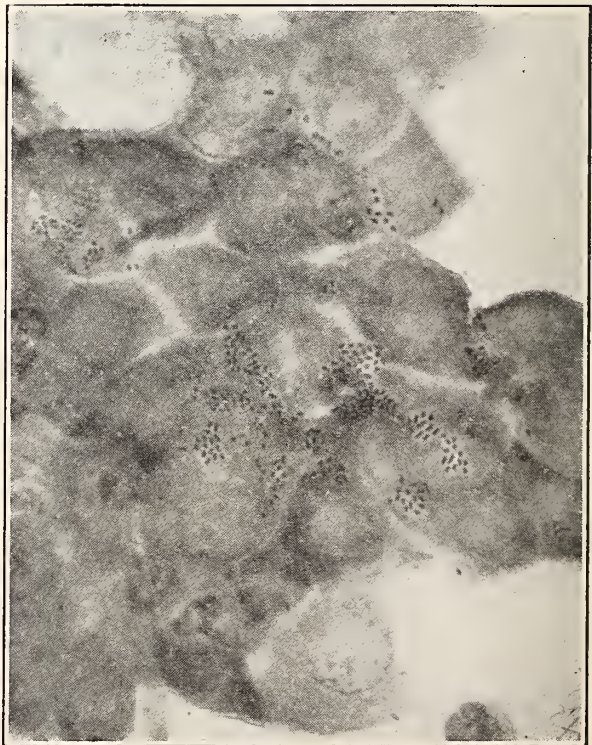


FIG. 8. Pneumococci Invading Conjunctival Epithelium.

pneumococcus attacks the submucosa also, but in pure conjunctivitis it is confined to the epithelial layer. (Fig. 8).

I see no reason why other mucous membranes may not be affected in a similar manner to that of the conjunctiva. Lindner has shown that this is the case in gonorrheal processes in women. He explained the chronicity of gonorrhea by the fact that the epithelial surface that lines the genito-urinary tract is very extensive; and that, while in certain areas the epithelium may become immune to the gonococcus, other areas are susceptible and reinfection occurs. This process has its analogy in the conjunctiva, where relapses after apparent cures are not uncommon. That epithelial immunity to the gonococcus is of short duration has been demonstrated bacteriologically by Lindner and others. Might not this theory explain some of our obscure infections of the mucous membranes of the respiratory, genito-urinary and intestinal tract?

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DISCUSSION

E. R. Neeper, Colorado Springs: I must apologize. I thought Dr. Finnoff's paper was second on the program and I did not get here in time to hear it at all, and have not seen it; so all I have seen are the pictures.

There are several things of definite interest relative to these infections that might be interesting to the general practitioner. I will not try to cover them very fully, because it is not in keeping with Dr. Finnoff's paper at all. The thing I want to speak of is the re-infection that may follow a quiescent case of conjunctivitis, after we feel we have obliterated it entirely by treatment. So many cases will relapse, and I think it is based a good deal on Dr. Finnoff's theory, the bacteria having invaded the deeper tissues and perhaps certain (ones) of them will come back to the surface and multiply very rapidly; and in dealing with these I think there is some danger of relapsing, more so than that of the primary infection. I have worked always for a good many years on the basis of keeping up whatever treatment is controlling for some three or four days after all secretions have disappeared, because the quicker these cases are closed, certainly the better for the patient, as we will avoid the follicular inclination to follow. A case of conjunctivitis that has gone over a considerable period is likely to leave roughened conjunctiva which will be detrimental to the patient for some time. I believe nine out of ten of the cases are treated more or less with argyrol, and I think the general practitioner is using it entirely too weak. To get its best control, we should use perhaps 15 to 20 per cent, and use perhaps every hour or every two hours for a day, depending a great deal on just

how free the secretions are. And I have wondered whether argyrol was as great a germicide as we have credited it. I feel that these cases of conjunctivitis, that particularly are re-infections, may often come from the conjunctiva, the deeper tissues. We will note a great many of these cases we can see microscopically a definite conjunctiva flush. We may know by that and see very small hemorrhages in the conjunctiva and sub-conjunctiva space. We may know by that whether our bacteria has penetrated and cut into the small vessels, and that we have this hemorrhage following as a result of that. By keeping the meibomian glands free you will close out a case definitely quicker than otherwise. I think these cases more often will come after a nasal infection. My experience is we more often get it during the latter part of our acute coryza rather than in the acute state.

Edward Jackson, Denver: The matter that Dr. Finnoff has brought before us is an important one, from two entirely different points of view. One of them, a better understanding of the exact mechanism of a bacterial infection should make our methods of combating such infection more exact and more effective. The other is, that Lindner's work furnishes a new point of view of the defensive mechanisms of the body, as regards to bacterial invasions.

The presence of the gonococcus in the cell has been recognized from the very early years of the recognition of the gonococcus. Many years ago it was rather a deciding point in the laboratory examinations—were the diplococci intra-cellular or inter-cellular? Were they in the cell or simply between them, or on the surface? There are a good many writers who have dwelt on that more or less. McKee of Montreal, twenty-five years ago, dwelt on the fact that bacteria are sometimes on the cell. But it was Lindner, and those who have followed Lindner's work, that definitely proved to their own satisfaction, and I think now to the satisfaction of pathologists in general; that these young epithelium cells, under the influence of the toxins that reached them, infiltrating between the cells—reached the deeper layers where the young cells were proliferating—that these young cells, formed under that influence, were phagocytes.

You find quite considerable lists of cells to which that power was assigned; but the striking thing is that to the epithelial cells no such power was ascribed; and it was not until Lindner did this work that it was really demonstrated that young epithelium cells, bred under the influence of the toxins that were furnished by the bacteria, did produce this powerful phagocytosis. Dr. Finnoff has not dwelt on that; but the staining of cells invaded, at different stages of the invasion, the staining of the bacteria already within the cell, has demonstrated that those that were within the cell, were losing their vitality. The staining was less and less, until they very largely lost their power of staining.

It is curious to trace the slow growth of this idea. Lindner, I think in 1909, published several successive articles upon this subject, very distinctly calling attention to this fate of the bacteria that had invaded the cells, or had been taken into the cells; and yet it was not until after the publication of Howard's paper in this country, ten years later, that the Germans or the Austrians, began to "sit up and take notice", that such facts had been called attention to in the literature. Then, shortly after the publication of Howard's paper, I had voluminous correspondence with German ophthalmologists who had seen this or that

But none of them had seemed to realize the primary significance of the fact that young epithelial cells could be very active phagocytes.

It seems to me that must be of very wide importance; that is the reason for bringing it before a society of this kind. If the investigators of other mucous membranes take up this line of thought, we will learn a great deal more about the epithelial defense mechanism, than we have ever known before; and the epithelium, with the lymphatic system, will have to share in the studies that are made of pathogenesis, and pathology and therapeutics. It is hard to estimate how extensive this function is of the young epithelial cells becoming phagocytes.

We know, from the experience of all of us, that in every callous, every blister, we have gotten from using our hands, or walking in poorly fitted shoes, that the epithelial cells, on the whole surface of the body, are capable of rapid proliferation under mechanical stimulation. Lindner proved that where the toxins have a fluid to carry down to the deeper layers of the epithelium, the young cells, that the bacteria are also able to excite rapid proliferation. This has now been proved that with reference to the fate of the bacteria in the conjunctiva, and the presumption is raised, that in general the young epithelial cells have a capacity for developing into phagocytes. They may be a far more important guard against infection, from one individual to another, than has ever been appreciated.

George A. Boyd, Colorado Springs: One or two questions come to my mind regarding the statement that the younger epithelial cells acquire phagocytosis, while the older ones do not. I think the statement open for consideration. The cell that is invaded has very little time for adjustment; but to assume that the surface cell has no power of phagocytosis, leads to a wrong concept. I think in all probability it must have some kind of resistance to the micro-organism, but that it is not does not have sufficient time to develop antibodies. If we assume that the surface cell has no potentialities of phagocytosis, it is extremely difficult to see where we get a starting point in the younger cell for the development of this function.

William Singer, Pueblo: In common with most general men I know very little about the diseases

of the eyes, but I am deeply interested in a discussion of this kind. We have to go back to a study of unicellular organism to understand all the functions of the cells of the human body. It is a well known fact, for instance, that the amoeba lives very comfortably upon bacteria; but it is also a well known fact that the micro spirilla, for instance, are parasites of the amoeba and will destroy the amoeba.

The point that I am particularly interested in is the cell membrane of the epithelial cell, and the cement substance between the cell. Dr. Finnoff said that the pathogenic organism passed down between the cells and invaded the lower layers of the epithelium through the cell membrane.

In the light of Dr. Finnoff's discussion we should after all pause an instant, and give credit to those who through empiricism have taught us the use of the silver salts in combating early, these infections.

Dr. Finnoff (closing): The purpose of bringing the paper before the Society is to stimulate your interest in the subject, and possibly have some of you investigate the subject of infections of other mucous membranes along this same line. I think that I have brought out the fact that we do have relapses, and the fact that we have a relapse shows that there are areas of immunity even in the conjunctiva, while other areas are susceptible. Immunity toward some organisms is very transient. The hemorrhages that occur in the sub-mucosa are due to bacterial toxins and not to the invasion by bacteria. It is one of the stages of inflammation. The old teaching that gonococci were intra-cellular, is of course correct. They are found in the leucocytes, which are phagocytes for the bacteria, in the secretion. They also invade the epithelium before the leucocytes come, and it is towards the epithelium that we must direct our attention. The point brought out by Dr. Singer regarding treatment is correct. That was done empirically with silver nitrate and other silver compounds. We know now that it is effective, because the superficial cells which had less resistance are desquamated and the new formed cells are more resistant. The point brought out by Dr. Boyd is correct also, that the superficial cells have phagocytic properties, but their phagocytic properties are decidedly less than that of the young cells.

ACUTE APPENDICITIS IN CHILDHOOD*

B. B. BLOTZ, M.D.
ROCKY FORD, COLORADO

Acute appendicitis, as a subject for discussion, is now regarded as somewhat passe. It has been swept from the stage as being definitely settled and it is not without some hesitancy that I ask your indulgence in its reconsideration.

No surgical problem, however, can be regarded as solved so long as methods pertaining thereto are followed by mortalities. There is an optimum time and an optimum way in the management of each case which should

lead to optimum results.

It is now considered by all, as Dr. Deaver so aptly expresses it, that we have two treatments for appendicitis, surgery and Fate. We can well add that the earlier surgical intervention, the less will be the responsibilities of Fate. The mortality curve bears a definite relationship to our diagnostic acumen in detecting the earliest invasion of the pathologic process. When Dr. Murphy laid down the symptom complex of pain, vomiting, tenderness and temperature, as necessary to establish a diagnosis of appendicitis,

*Read at the fifty-sixth annual meeting of the Colorado State Medical Society, Colorado Springs, Sept. 21, 22, 23.

it was at a time when a number of internists still believed that there was a medical side to its treatment and in many cases the pathologic process was well on the way by the time Dr. Murphy first saw the patient.

It is not improbable that the first few hours of an acute appendicitis are, in many instances, symptomless. Abdominal pain or distress is usually the first clinical evidence of trouble. It may be any place in the abdomen and is in itself not diagnostic, but should arouse suspicions and we should under no circumstances advise treatment in cases of abdominal pain or cramps without first having seen and examined the patient. Tenderness on deep palpation over the appendix usually follows the onset of pain in short order, and we have learned to regard it as the most dependable sign in the diagnosis of acute appendicitis. In other words, in a given case of abdominal pain, with definite, localized tenderness over the appendix we feel that surgical intervention is justifiable, providing other conditions can reasonably be excluded.

In small children it requires considerable patience in examination and it is usually necessary to wait until they have become quiet before attempting to resume abdominal palpation. It will then be noted that they cry out more readily, or draw up the right limb when the region of the appendix is approached. The rectal temperature is usually present even though the temperature by mouth registers normal. Absence of a marked leukocytosis and even fever should not weigh seriously against surgical intervention, if unmistakable tenderness, localized over the appendix, is present.

The meso-appendix in childhood is often quite short and the positions of the appendix in one hundred and fifty cases in children collected by Liertz and Vallie were found to be retrocecal in one-third of the cases, medial to the cecum in one-half of the cases, lateral to the cecum in only two cases and below and free in only one-tenth the cases. Early abdominal rigidity due to muscle spasm may be absent in the retrocecal type and often, when it does make its appearance, a local peritonitis or possibly rupture of the appendix with spreading peritonitis is taking place and is

the cause of the rigidity.

The early diagnosis of appendicitis in children is not difficult if we are alert and always keep it in mind as a possibility. We do not expect to meet with the pelvic, renal, gastric, or gall bladder pathologies that we must consider so carefully in the adult. The most common and unfortunate cause of delayed diagnosis lies in the assumption by parents that all intestinal pains in childhood are the belly aches of indigestion.

In sixteen cases of appendicitis in children operated during the first nine months of this year we had no mortality. The appendix in every case showed definite macroscopic pathology. Absence of mortality in such a limited series of cases does not mean anything. Six cases or nearly forty per cent required drainage, in spite of the fact that we drain fewer cases than formerly. The drainage cases, with one exception, were among the youngest of the series, the youngest being two years and four months of age. This seems to indicate that we are slow to grasp the situation in the very young, permitting the pathologic process to continue past the point where a clean operation would suffice and thus through delay convert it into a drainage case with its subsequent adhesions and possible hernia.

The problems of technic involved in the surgery of acute appendicitis in childhood do not differ from those in acute appendicitis in adults. In a case with a well defined mass, we approach the probable abscess from the flank side dissecting carefully. At the first sight of pus it is picked up by suction until the abscess cavity has been emptied. The appendix is then removed.

The points in technic in our hands, which seem to contribute toward a smoother convalescence in cases which have gone on to the rupture, can be summarized as follows:

- (1) The protection of the abdominal incision by moist salt sponges.

- (2) The use of suction for the evacuation of pus.

- (3) The removal of the appendix in every case where it is reasonably possible.

- (4) The use of the least possible amount of gauze within the abdominal cavity for packing or drain.

By the use of suction at the first sight of pus, we do not smear over the field of operation as we do with the gauze mop. Its use also facilitates a more thorough evacuation of the abscess, thereby often uncovering clews to other pockets which may exist.

Cases of appendicitis, operated upon within the optimum time when the pathology is still within the appendix, give little trouble postoperatively. This ideal condition unfortunately does not prevail and often our labors only begin with the ending of the operation. The postoperative treatment of acute appendicitis with complications, occurring in childhood, differs in that certain measures which we accept as of value in the adult are difficult to carry out with children. This is especially true with all methods of proctoclysis. All cases of acute appendicitis with drainage in children should have the advantage of a special nurse. Fear, anxiety, pain, and unnatural positions contribute to shock and lessen the resistance to the toxemia. We have abandoned the use of the extreme Fowler position for a lower and more comfortable posture. Infections do not obey the laws of gravity but rather progress along the lines of venous and lymphatic channels. When pus has formed the abscess grows along the lines of least tissue resistance which is determined more by the position of the appendix, the mesenteric folds and omentum and the position of intestinal loops than by the posture of the body.

The difficulty encountered in the use of proctoclysis in small children has caused us to take more liberties in the administration of fluids by mouth. Finkelstein, Marriatt and others, have proven, through rather revolutionary methods of infant feeding, that the maintenance of caloric standards and the prevention of dehydration are important in the treatment of acute gastro-enteric infections and while the complications of appendicitis involve extra intestinal rather than intra intestinal pathology we still believe that the withholding of fluids by mouth for prolonged periods, reacts to the disadvantage of the patient.

Carlson has shown that gastric hunger contractions come on with greater frequency in the young and that they are often associ-

ated with weakness, nausea, increased tendon reflexes, and increased pulse rate. In drainage case of appendicitis in small children we believe in beginning quite early, post-operatively, cautious administration of water and glucose or sugar solutions by mouth. These fluids are absorbed from the upper small bowel and unless given in excessive amounts cause little increase in peristalsis but, on the contrary, will inhibit excessive gastric motility due to hunger contractions and lessen dehydration and the discomfort from thirst. An attempt, however, should be made in every case to give fluids per rectum and whenever successful they should be administered freely. All other post operative measures concerned in the surgery of the appendix in children follow closely those so well established in the care of the same condition occurring in the adult.

Conclusions

1. We have a duty to perform in educating parents as to the possible significance of abdominal pain or distress occurring in children.
2. A low mortality rate and a low percentage of drainage cases depends upon early diagnosis and early operation and at least a part of the responsibility of delay rests with the parent.
3. We are not, in the beginning of an attack of appendicitis, able to estimate the extent of the pathology or the virulence of the infection, from the clinical picture.
4. When in doubt, operate. We can usually explain and justify the removal of an occasional normal appendix but there are few of us who can resurrect a patient in the event of a mortality.

DISCUSSION

W. W. Grant, Denver: This subject is always new and never dull; and the reason it is never dull is the high mortality. The question of its pathology need not be discussed. Its symptomatology is still of some importance, because it is so well understood that it is a classic. In the mild, ordinary form of appendicitis, as it is called, there is little or no pain, and the term is often used for a faulty and a doubtful diagnosis; but chronic appendicitis is not the result of acute appendicitis. On the contrary, acute appendicitis is generally the sequel of a low grade infection that has existed a long time. I say this because there are those who seem to think that every acute disease has had a chronic manifestation; that is not correct. The diagnosis—still a very much neglected

field—and the treatment are very important considerations. The diagnosis in children differs from that in the adult, for the simple reason that it is more difficult; you get no assistance subjectively from the patient; you guess a good deal, and I may instance this by saying that a great many appendices in children have been removed when they were suffering from a right sided pleurisy or pneumonia. I do not lay so much stress upon the abdominal distention in childhood. The tenderness is of little importance, for the reason that it is of little value in childhood. A child shrinks just as quickly from pressure on the left side as on the right in appendicitis. Furthermore, in an investigation and collation of facts it has been shown that appendicitis seldom occurs in babies or children under two years of age—less than one hundred cases have been collected. The appendix age in childhood is from eight to thirteen; the appendix age in the adult from that time on is within the limits of forty-five years; and when I say more people die annually from appendicitis than from cancer under forty-five years of age, you can have some idea as to its relative relationship to age. The cancer age is beyond forty-five; the appendix age is under forty-five, and the most sensitive age in childhood is from eight to fifteen years. The diagnosis is something that requires a patient investigation of the clinical history, which is too much neglected now by physicians as well as surgeons. They send their patients to the laboratory for diagnosis, and when they do it they are perhaps as little qualified to know what to do as they were before. I say this because I see the mistake of not investigating clinically these conditions at the bedside. Our instruments of refinement have tended to dull the perceptive qualities of the physician and surgeon in matters of diagnosis.

To my mind, for twenty or twenty-five years there has been but one treatment in any stage of the disease, or any character of the disease, and that is operation. We are prone to say that delay is the cause of the excessive mortality in appendicitis; and as to this mortality, permit me to call your attention to something published recently in one of the greatest surgical journals known, the official journal of the American College of Surgeons, in which a doctor writing an editorial—and I presume you will all agree with me, that when a man writes an editorial in a high class journal we have a right to assume that he knows what he is talking about—but Dr. Starr writes an editorial on osteomyelitis, and the second paragraph he devotes to appendicitis, and he says that in almost one generation, on account of improved technique and efficiency in diagnosis, the mortality has been reduced to a minimum. I say this because I intend to deny it and to give the facts. Any man who says that the mortality is reduced to a minimum is not entitled to much consideration, and if he does not know anything more about osteomyelitis than he has shown about appendicitis, I doubt if his editorials are worth reading. And that is published in *Surgery—Gynecology and Obstetrics*, in a recent issue, the June number, I think. It simply shows, because of the great progress made in surgery in this generation, that because certain men operate with a very small mortality, 1 or 2 per cent, that anybody can do the operations in all cases. Notwithstanding this sort of statement in this same journal, if the editor had read the March number of the same journal he would have found a very different story, and one which gives the facts from the published reports of the surgical associations and

the Bureau of Vital Statistics of this country, which gives the mortality from appendicitis and many other important surgical conditions; and those statistics include probably 80 per cent of the population of this country, and in fact they gave the deaths in this country from appendicitis as 16,000 annually. Now, we know that in abdominal infections there is nothing so frequent nor as dangerous, perhaps, as that of appendicitis. The mortality is greater than for most combined infections of the abdomen, and when it is shown—and I may precede this by saying that two years ago before the Western Surgical Society I stated the mortality was 8 to 10 per cent, and I underestimated it, as it is now proven, caused not only by delays but by errors in diagnosis and of incompetent surgeons. There is no other way of explaining the mortality from appendicitis today which is 14½ per cent instead of 8 to 10 per cent as I stated, and this has occurred in the Golden Age of medicine and surgery, 1901 to 1920—the mortality has increased 31 per cent.

The mortality, in good hands, is very small, 1 or 2 per cent, and if those men occasionally lose a case, as in the Ochner treatment, then, if they die from that, they probably would have died without operation.

F. P. Gengenbach, Denver: The appendix in utero is first found in the left iliac fossa, later it is drawn up under the liver, and then it gradually descends to the right iliac fossa. For some reason this latter movement is not always completed and as a result we may find an appendiceal abscess in the right hypochondrium. The appendix has some lymphatic tissue, it is sometimes called the abdominal tonsil, and like the tonsil is subject to catarrhal inflammation. Like all catarrhal inflammations, they may be mild; very severe, or only moderately severe. No one can gainsay the fact that if a child has an acute attack of appendicitis with very definite symptoms, the rational treatment is surgical removal of the appendix. In childhood the inflammatory progress seems to be so much more rapid than it is in adults, and one who has seen much appendicitis in children, cases that have been operated, cannot fail but be impressed with the fact that after an exploratory incision the condition in the appendix is usually found to be much more marked than the symptoms suggest. However, we must remember that in early life the large proportion of abdominal symptoms in childhood are gastro-intestinal in origin. I think that the diagnosis of acute appendicitis in what might be termed the mild or border line cases, is a diagnosis that I approach with the greatest perturbation. Unquestionably many of these mild cases do recover, at least temporarily, under expectant treatment, i. e., rest in bed, starvation diet, and perhaps an ice-bag over the appendix, but again I want to emphasize the rule that when you are sure of your diagnosis there is no question as to the treatment—it must be surgical. One of the most trying differential diagnoses that we have to make, is the case with abdominal symptoms in a beginning pneumonia, especially in the right lower lobe. The higher fever which is usually present, the usually higher leukocyte count, the respiratory grunt, and the cough, help us to decide that it is more likely a pneumonia than an appendicitis. One, however, must not overlook the fact that it is possible to have both conditions present at the same time. You may also have a pneumonia with a pneumococcal peritonitis. Cases of intestinal obstruction may simulate appendicitis.

In closing I want to particularly make a plea for

a sufficiently prolonged convalescence after major operations in children, including appendectomy. I have been frequently impressed by the presence of functional cardiac murmurs occurring after operations, even tonsillectomies, and I am not in sympathy with the surgeon who is always trying to see in how short a time he can get the child out of bed and back to school. Surely all of us who read the sport page of the newspaper could not help but be impressed by the experience of our famous young female tennis champion, which showed very definitely that one should avoid violent or prolonged exertion for weeks and sometimes even many months, after major operations.

G. B. Packard, Jr., Denver: I recently had occasion to review the last one hundred cases of acute appendicitis operated at the Denver Children's Hospital. One or two points noted there I wish to mention: First of all, twelve deaths—12 per cent mortality—approximates Dr. Grant's statistics of these twelve deaths, ten were the result of ruptured appendices, and general peritonitis. This brings out the fact that children are particularly susceptible to peritonitis. Children do not localize well; they do not do well under the Ochsner treatment, or any other waiting treatment. Of these cases, nine were under five years of age, and three were under two years of age, showing in particular that the younger children are those who are not diagnosed early. I think the younger the patient, generally speaking, the more rapidly they go through the course of the different stages of acute appendicitis, and the more rapidly they perforate; and at the same time, of course, the younger the patient, is the harder it is to make the diagnosis. Of the two that did not die of general peritonitis, one of pneumonia, and the other of intestinal obstruction. I think the main thing about appendicitis in young children is the difficulty of early diagnosis, and the rapidity of its course; so that naturally, the conclusion is that the sooner they can be operated, the less often will be peritonitis and death.

C. H. Graves, Canon City: One of the features that has bothered me a good deal is this—occasionally you will get hold of one of the little fellows with practically all of the classical symptoms of appendicitis and you will find on careful examination that he has pyelitis. No one, so far, has spoken of pyelitis in the differential diagnosis of appendicitis. We have had a number of cases of pyelitis and in some of them we came mighty near operating for appendicitis. Of course it is difficult to distinguish between a primary appendicitis and a pyelitis because many cases of acute appendicitis have albumin and blood in the urine.

The doctor on opening this discussion spoke of local tenderness being of no value as a diagnostic feature in children. I think it is, especially before a general peritonitis has set in. If you go over the abdomen carefully and watch their facial expression, and consider it, rather than that they tell you, in most instances it is perhaps the most valuable evidence we have. You may have to divert their attention by talking about something else, and go slow and carefully.

I also differ somewhat with Dr. Gengenbach—I am afraid not to operate the apparently mild ones because I don't know of anyone that can distinguish a mild case of appendicitis from a bad one. We all open up cases now and then that are considered mild and had figured we would be through within a few minutes, and run across some of the worst appendices we ever encounter. I have operated where there was no temperature, no acceleration of pulse, and found the whole ap-

pendix to be gangrenous. I think that with children, and adults also, the only safe procedure is to operate, except with some rare cases where there are strong contra-indications to operation. These rare cases are still more rare in children than in adults.

In regard to abnormal location of the appendix due to congenital reasons, I wish to mention that I operated one case and found the tip of the appendix firmly attached to the lower sharp edge of the liver.

I believe that is all I wish to say.

Emanuel Friedman, Denver: In some cases a diagnosis of appendicitis in children is extremely difficult to arrive at, and I think it is well to bear that fact in mind. There are many extra-abdominal conditions which are characterized by abdominal pain. I shall enumerate only a few of the more important ones which frequently simulate appendicitis. I believe the commonest of these is the ordinary tonsillitis, or the sore throat that accompanies grippal infections. These may simulate an inflamed appendix so closely that in every community a few patients every year come to the operating table with the mistaken diagnosis of acute appendicitis. The eruptive fevers, notably measles, will not infrequently lead to an erroneous diagnosis of an inflamed appendix.

In the thoracic cavity we also have certain conditions frequently mistaken for appendicitis. Lobar pneumonia, especially on the right side has been mentioned, and is one of the very frequent chest conditions so mistaken. Dr. Gengenbach pointed out some of the differential points, and if these are borne in mind a mistake is almost inexcusable, in this particular regard. Endocarditis, especially in association with pericarditis, frequently gives rise to pain, not in the chest, but entirely limited to the abdomen. Here again careful attention to the history and a painstaking physical examination will help to set us right. Pleurisy, more so when diaphragmatic, such as we have seen in this recent epidemic of grippe in Denver, will often cause pain in the abdomen, and the affection may be exceedingly difficult to differentiate from appendicitis.

Of course, before we commit ourselves definitely to a diagnosis of appendicitis we ought to survey every possible condition in the abdomen which might cause pain. Among these Dr. Graves has mentioned pyelitis, a condition which is very frequently overlooked, not because of failure to examine the urine, but because pus may not appear early because of obstruction; and some cases of pyelitis are not characterized by the presence of pus, but merely by the colon bacillus.

Chronic appendicitis is also very difficult to diagnose under certain circumstances. Many conditions that Dr. Hall has referred to, such as malnutrition, are due to chronic appendicitis; and here we may have no pain nor tenderness in the region of the appendix; and only an acute exacerbation of the chronic inflammation will point to the true condition. Chronic constipation is frequently mistaken for a chronic appendicitis.

J. N. Hall, Denver: Ladies and Gentlemen: I think we can endorse everything that has been said today in the paper under discussion, but one matter has not been touched upon at all, and that is the chronic appendix in children. I constantly see children that have had repeated attacks of indigestion, say, from the time they were two or three years old up until the time they were ten years old, and they go to one doctor and he makes a diagnosis of acidosis, and another doctor he says it is cyclic vomiting, and another doctor says

"migraine," and he will eventually grow out of it. I do not know but what there are some of these cases that do not have chronic appendix; but I have never seen one. I have had a good many operated, and every time we have a miserable chronic appendix, and we remove it, find the child doing wonderfully well afterwards. There is a pretty well defined form of lack of development in children because of an old chronic appendix. I have in mind at this moment a man who weighs 206 pounds, and yet at fifteen he was a little bit of a runt, because he had had such a bad time with the appendix. He finally had his appendix out, and grew a foot in the next year, and he kept on growing until he is past six feet now. I haven't any doubt if he had had his appendix out earlier he would have been ten feet high by this time.

But I want to speak very seriously about this: We see a good many doctors who seem to be hasty in a good many other things, and yet they will persist with children in going on year after year, giving them soda, and all sorts of things, and so far as I know never putting their hand on the belly to find out what is the matter. You will always find rigidity and often continuous vomiting, and if you can only convince the parents what the trouble is, and remove the appendix, you get almost immediate recovery. I think that deserves careful consideration.

F. C. Buchtel, Denver: There is one point in Dr. Blotz' paper I especially like, and that is this, that, when in doubt, operate. We talk so much about differential diagnosis that everybody is afraid of going in on the normal appendix, and I heartily agree with him that it is no disgrace to go in occasionally on a normal appendix, but it is a terrible disgrace to lose a patient. I have been in the habit of saying for a great many years that I would rather have an early operation by the occasional operator than a late operation by the experienced operator.

Two years ago I had to choose whether I would do just that thing. At 6 o'clock in the morning I had a telegram from Exeter saying one of my boys had appendicitis. Without hanging up the phone I telegraphed back, "Operate at once." By 10 o'clock I had not received a message that they had operated, so I sent another message, "Operate at once." I took the 11 o'clock train to go East; he was operated on by a general practitioner who had not done more than two or three appendix operations in his life; and I consider that very much better judgment on my part to have my boy operated early by a man who has had very little training in surgery, than to wait for some Boston surgeon to go to Exeter for the operation.

Dr. Singer: Mr. President, it is impossible to resist the temptation to discuss such an exceptionally interesting paper. Dr. Buchtel has stirred me up by talking about Exeter, a really great New England preparatory school for boys. Any man who sends his boy to Exeter has rare judgment as a surgeon, and a father.

Some years ago I had a case of appendicitis, where there was absolutely no walling off of a ruptured appendix, and notwithstanding the establishment of immediate excellent drainage, the case was lost as a result of a general peritonitis.

Later in studying this case I felt that the prime cause of failure had been brought about by the rapid absorption of toxic substances through the large area of involved peritoneum.

Some years before this I had begun the use of saturated sugar solution, employing approximately two and one-half pounds of white sugar, either beet or cane, to one quart of water, which,

after being properly sterilized, I had directed to be applied at suitable intervals, from two to six hours, to infected wound areas, compound fractures, knee joint infections, and abscess cavities. My success with the cases mentioned above was most satisfactory, and led me to try saturated sugar solutions in a series of abdominal cases, six in number to date, where there was no walling off of a ruptured appendix, and where it seemed to me, as a result of the poor reaction on the part of the patient to his infection, the outlook was definitely bad. In each instance after the removal of the appendix, and the completion of the proper toilet of the field, the tubes inserted, and the patient returned to his room, sugar solution was immediately made up, sterilized, and injected freely, completely flooding the involved field by way of the tube, being careful, however, not to cause distention by forced injection, all of these cases recovered, and as the result of my experience there is no question in my own mind with reference to the value of saturated sugar solution in infections. They definitely abstract water from the tissues, and reverse the current of absorption, and establish it as one of drainage, they are in my experience non-toxic, but their use must be reinforced by a super hydration to the fullest degree that the heart will permit, either by mouth, by rectum, by hypodermoclysis, or directly into the blood stream, and this super-hydration must be checked by the definite determination of the specific gravity of the urine, which should be maintained day and night at 1.005 if possible.

E. H. Munro, Grand Junction: I just want to add three infant cases to the hundreds that have been mentioned. I think appendicitis occurs in infants more often than is realized. I saw a case about four years ago that had been diagnosed as middle ear infection, because the child threw its head from one side to the other and had great pain, and some fever. That child had general peritonitis at that time, and a day and a half later we succeeded in operating. The parents would not permit it at the time. I have 100 per cent mortality to report in these three cases. The second case was one which came down to me from Palisade, over rough roads, in a car, having been sick for several days. That child had a very high temperature. I thought of appendicitis, but I wasn't sure, but I did feel that there was a peritonitis there, and that an operation was necessary, but the parents would not permit it, and the child died the following day. I succeeded in getting a post on it. The third case was of about a month's duration since onset. I saw it about eight or nine months ago. That child had the right leg drawn up, had some swelling in the right groin. The parents had felt that the hip had been injured in some way, and they had been to an osteopath to have the hip adjusted. The child was very ill. I took an x-ray to see whether or not there was any trouble in the hip joint, and saw there was a shadow to the lower right part of the abdomen and extending down into the thigh. I took the child to the hospital and made an incision down in the thigh, got a great quantity of pus, was able to run my finger up into Poupert's Ligament and bring out a great quantity of pus. That child also died. The interesting thing about that case was that there was a retrocecal abscess, and apparently a retroperitoneal, but the appendix was in a solid mass. This was the only one of the three cases that had abscess. I do feel there are a good many more cases in infants than we ever have thought of, and I think it ought to be watched more closely than it is.

SYSTOLE

A cracked pot never fell off the hook.—
Italian proverb.

All is lost when the people fear death less
than poverty.—Chinese proverb.

He is most powerful who governs himself.
—Seneca.

In doing what we ought we deserve no
praise because it is our duty.—St. Augustine.

To follow foolish precedents and to wink
with both our eyes is easier than to think.—
Giles' proverbs.

Preparation is half the battle, and nothing
is lost by being on one's guard.—Don
Quixote.

The pride that holds its head high rarely
picks up anything; whereas, modesty like a
diver gathers pearls by keeping his head
low.—Punch.

It is better to make conditions in the bush
than in prison.—Danish proverb.

Let the wretched hope and the prosperous
be on their guard.—Latin proverb.

A proverb is the wit of one man and the
wisdom of many.—John Russell.

The worst punishment of all is that in the
court of his own conscience, no guilty man
is acquitted.—Juvenal.

If a man empties his purse into his head
no man can take it from him.—Franklin.

Quackery has no friend like gullibility.—
Abd-ar-Rahman.

He that makes a question where there is
no doubt must make an answer where there
is no reason.—Sfik or old Acalabar, Africa.

DIASTOLE

Child: "Mother, may I have some water
to christen my dolly?"

Mother: "No, dear."

Child: "Then may I have some wax to
waxinate her?"—World Humor, N. Y.

A Concise Report

Lilly Brown, a "yaller" girl whose com-
plexion matched her name, returned to school
after an absence with the following excuse:

"Dear teacher,

"Please excuse my Lilly. She has spells
and she had one."

Scientific Deductions

Hayward Thompson is to astound Denver
and environs with his seemingly impossible
feats of driving while blindfolded. * * *
Leo L. Spears, D.C., local chiropractor, will
announce the reasons from a scientific stand-
point of the required period of fasting. * * *

A period of fasting is required prior to
every exhibition given by Thompson, and
while many are prone to believe that this is
merely used for publicity purposes, Leo L.
Spears, D.C., local chiropractor, who is
caring for Thompson's physical condition
during his stay in Denver, gave out logical
reasons for the fast. According to the chiro-
practor and Thompson the twenty-four-hour
fast is essential for reason that if solid food
is taken prior to an exhibition there is a feel-
ing of violent nausea as soon as the mask is
applied. This nausea makes it impossible
for Thompson to go through with even a
minor portion of the performance. It is
claimed that fasting is the best way to
sharpen the wits. However, Spears states
that the elimination of the digestive process
makes active that portion of innate intelli-
gence which is utilized in all subconscious
action. Spears is prone to believe that
Thompson goes into a state of self-hypnosis
and that the subjective mind takes com-
mand.—The Denver News and Times.

NEWS NOTES

Dr. I. B. Perkins has just returned from a clinical trip to New York.

Dr. Earl Whedon and C. F. Kemper attended the secretaries' conference at the American Medical Association Building, Chicago, November 19th and 20th.

Many Denver physicians have announced a change of their address to the Republic Building.

The Presbyterian Hospital of Dencer is rapidly developing a professional organization along approved lines.

DOCTOR JAMES M. PERKINS

Doctor James M. Perkins was born at Farmington, Missouri, January 8, 1863, and died in Denver, Colorado, October 29, 1926.

He spent his life on a farm until he was grown and received his premedical education at Farmington, where he graduated from Carleton College, and taught school three years before beginning the study of medicine; was a student in the medical department of Denver University one year, after which time he graduated from Missouri Medical College, now the medical department of Washington University, in 1890.

At an early age he was thrown upon his own resources, and while a medical student in Denver acted in the capacity of nurse for typhoid cases so prevalent at that time.

He was health commissioner of Denver for one year and under the commission form of government was elected mayor and served in that capacity for two years. In both of these offices he acquitted himself with credit.

It was in his chosen profession that Doctor Perkins was best known.

Trained by his early life to resourcefulness and self confidence, with a good medical education, a close observer, conscientious in his relations to his patients, kindly and of a sympathetic nature, charitable in all things to all men he served well those who were honored by his service.

As a husband and father no home could ask more; as a citizen his character was unblemished; as a physician a multitude of patients bear witness to his skillful, sympathetic service.

A man without pretense, a Christian gentleman whose presence always edified, a physician and surgeon of judgment and skill has passed from our midst and in passing has left an indelible impression for all that is highest and best in life.

To his family the Medical Society of the City and County of Denver extends deepest sympathy.

(Signed)

H. G. HARVEY,
CHAS. JAEGER,
DAVID THOMPSON,
Committee.

MEDICAL SOCIETIES

ROCKY MOUNTAIN PEDIATRIC SOCIETY

The regular monthly meeting of the Rocky Mountain Pediatric Society was held at the Children's Hospital, October 30, 1926. The following cases were presented:

Dr. W. W. Barber:

1. Renal Tuberculosis. A girl of six years of age whose mother died of pulmonary tuberculosis shows the symptoms of pyelitis, pus and blood in the urine with tubercle bacilli shown to be present. Pyelography shows the left kidney badly damaged. Guinea pig inoculation proved the diagnosis.

2. Hodgkins Disease. A child less than two years of age showing enlarged cervical, axillary and inguinal lymph glands, a very large spleen together with an anemia. Red cells, 2,400,000. Biopsy by Dr. W. Burdick reported Hodgkins Disease, although no giant cells were found. If this is a true Hodgkins Disease it is the youngest case reported.

Dr. J. C. Savage:

1. A case of congenital atresia of the oesophagus in a twin four days old with typical x-ray picture shown.

2. A case of poliomyelitis developing paralysis on the ninth day after the initial symptoms. A brother of the patient had died of poliomyelitis of the fulminating bulbar type, two weeks previously.

Dr. F. P. Gengenbach:

1. A case of progressive muscular dystrophy in a child 11 years of age who had had infantile paralysis at 22 months of age. Patient had been able to walk to school until the past year. Since then he has grown progressively more helpless although his general health is excellent and he has gained in weight.

2. A case of secondary anemia and malnutrition in a twin aged 8½ months of age, greatly improved by blood transfusion.

3. A case of congenital hygroma or lymphangioma in a child 18 months of age. A large tumor mass has been present since birth in the left axilla and x-ray shows a shadow in the mediastinum, presumably an extension of the tumor. The patient has been very anemic, hemoglobin 37 per cent, and has had two blood transfusions. An intermittent temperature has been a feature of the case during the past four months. Radium treatment has apparently not affected the tumor.

JOS. C. SAVAGE.

NORTHWESTERN WYOMING MEDICAL SOCIETY

The fall meeting of this Society was held in Lovell, September 15.

Perhaps nowhere in the United States was such a meeting ever held. To the staid eastern or southern members of the Medical profession the idea of such a meeting would come as a surprise, but to the western doctor it seems as a little pleasure of life's busy round.

The members and guests all arrived after auto trips of an average close to one hundred miles of travel. But that's nothing—some came from Billings, some crossed the Big Horn range of mountains and rode all day to make the trip of one

hundred and fifteen miles. What was the reward for such efforts?

A meeting of good fellows—a fine banquet, not bakery or hotel food but a home cooked meal fit for the Gods.

A splendid scientific meeting lasting until midnight, where free and frank discussion followed every paper read.

Dr. E. W. Thuerer of Billings read a paper on "Goiter".

Dr. Chester E. Harris's paper was "Tularemia".

Dr. Earl Whedon's paper covered the subject, "Cataract from the viewpoint of the General Practitioner".

At midnight President Olson announced the meeting adjourned to Dr. W. W. Horsley's residence.

Two o'clock found most of the doctors retiring for one hour's sleep. At 3:00 a. m. all the men and some of the ladies met at the Lovell Cafe for a breakfast and at 4:00 we were all snugly located in duck blinds, whose construction by the local physicians enabled every doctor an ideal location around the famous Byron Lake.

In the early dawn, before it was light enough to see, the quack, quack, quack of thousands of ducks and other water fowls broke the stillness of the morning. Around this lake and its sloughs were scattered hunters from all over the country; New York City, Chicago, etc.

At last the light rays of the rising sun enabled the hunters to see faintly the objects of their quest. Then the music began! For about four hours the pop, pop, pop of the shotguns and the whirl of flying duck tore big holes in the atmosphere.

At seven-thirty an auto load of ducks were sent into town and at 10:30 the hunters and their wives sat down to a delightful roast duck breakfast. All the finest of fruit, cantaloupes and everything that the heart could desire, together with the finest roast wild duck satisfied the appetites of the most critical. The ladies of the Methodist church had not only furnished the delightful banquet but also prepared and served this wonderful breakfast. Among those present outside of the members of this Society were:

Drs. Louis W. Allard, E. W. Thuerer, A. J. Bridenbaugh of Billings Montana; Dr. Earl Whedon and wife of Sheridan, Wyoming; Dr. Perry J. Clark and wife, Dr. F. A. Mills and wife, Dr. J. A. Graham and Dr. T. J. Ice of Powell.

Dr. Chester E. Harris of Basin and the local physicians: Dr. Evald Olson, President, and wife; Dr. W. W. Horsley, Secretary, and wife, and some local guests made up the delightful meeting.

E. W.

COLORADO GENERAL HOSPITAL

October has seen several occurrences out of the ordinary, and undoubtedly of interest to the medical profession at large. It is to be understood that in many ways one month is like another, except for minor details. Unusual happenings are high lights in the composite picture of the month's activities, which makes it differ from other months. The usual data of the hospital and associated departments agrees in general with past months.

Patients in hospital October 1.....	77
Patients admitted during October.....	146
Newborn included in the above	10
Patients discharged during October.....	146
Patients dying in hospital during month.....	10
Autopsies performed	7

Patients in hospital November 1, 1926.....	66
Counties represented	24
Average length of stay in days.....	17

Among those discharged were 87 released as cured, and 38 as improved, a high percentage of all to leave the institution.

In the Out-Patient's Department a high daily average of 108 persons was attained. During the entire month 2,797 patients were treated. Of these 376 were new cases or a daily average of 14. In addition 76 individuals were refused admission for various reasons, chiefly financial.

On October 15, a definitely organized course for dietitians was opened in the hospital. This course, which will last six months, is given to supply the present and growing demand for graduate dietitians in the Rocky Mountain region. The training is both theoretical and practical; and five young women constitute the first class. This course should prove popular, as the future appears favorable. Already many inquiries from prospective future students have been received.

Results obtained by last year's graduating class of the School of Nursing in the examination given by the State Board of Nursing Examiners, have been released. The marks are uniformly high, which is very gratifying to all connected with the School. This was the first class of nurses to be graduated from the new institution.

On October 28 a clinic was given by the staff of the hospital for the State Homeopathic Society, then in annual session in Denver. Twenty-eight members of the Society attended. Clinics in general medicine, surgery and psychiatry were conducted and much interest was displayed by those in attendance. A week previous gratifying but not unexpected word was received from the Clinical Congress of the American College of Surgeons then in session in Montreal that the Colorado General Hospital had been granted unqualified classification as a class A institution of over 100 bed capacity. This is merely official recognition by this organization of the status of this institution, as no changes have been made or required to obtain this rank.

Improved organization and increased attendance of patients with economical management has enabled the superintendent to reduce the rate for county patients from \$2.50 to \$2.00 per day. Reduction in the per diem rate has been hoped for a long time, and now that it has arrived, it is to be hoped that the counties of the state will make still greater use of the hospital, which in turn will tend to further reduce the rate charged. A filled institution with more than half of the counties represented is hoped for, and will come.

E. R. MUGRAGE.

THE COLORADO SOCIETY OF CLINICAL PATHOLOGISTS

The regular quarterly meeting of the Colorado Society of Clinical Pathologists was held in Denver, Colorado, October 30th, 1926, at the National Jewish Hospital for Consumptives. Following a dinner given the Society by the Hospital the following officers were elected for the ensuing year.

President—H. J. Corper, Denver, Colorado.
Vice-President—E. D. Downing, Woodman, Colorado.

Sec.-Treas.—D. N. Beacom, Denver, Colorado.
The paper of the evening was presented by Dr. Ivan C. Hall, Professor of Bacteriology and Public Health of the University of Colorado School of Medicine, on "Anaerobic Wound Infections in Colorado."

Fifty-sixth Annual Session of the Colorado State Medical Society

Held at Colorado Springs, Colorado, September 21, 22, 23, 1926

PROCEEDINGS OF THE HOUSE OF DELEGATES

DIGEST OF THE MINUTES

President's report urges support of proposed anatomical law for benefit of State Medical School and makes recommendations for promoting periodic health examinations. (p. 402.)

Secretary's report shows net active membership of 1,068, gain of 26. Eleven deaths. Report of receipts remitted to Treasurer (\$9,222.77) and of vouchers issued (\$8,034.46). Recommends diversion of \$1.00 per capita of dues from Special Fund to General Fund. (p. 402.)

(Recommendation approved by reference committee and adopted. (pp. 417, 421.)

Treasurer's report shows disbursements \$8,034.46 and balance on hand \$9,080.51. Loss to General Fund \$504.39. Gain to Special Fund, \$1,978.34. Loss to Special Library Fund \$39.83. Net gain \$1,434.12. (p. 406.)

Recommendations of Committee on Public Policy that additional funds be urged for State Board of Health and that bill for annual registration of physicians be introduced in legislature, both approved by the reference committee report and the report adopted. (pp. 408, 419.)

Colorado Medicine cost \$6,598.57 for 12 issues. Deficit \$523.80. (p. 409.)

Library increased by 96 volumes. (p. 411.) Jubilee volumes, surplus, to be distributed free to members who desire them. (pp. 411, 419.)

Revision of By-laws adopted as recommended by special committee. Constitution amendments to lie over until next session. (pp. 412, 416.)

Resolution passed to petition U. S. Government to rescind its order prohibiting spraying of fruit trees with arsenical preparations until investigated by Public Health Service. (p. 415.)

President authorized to appoint committee (of five) on Mental Hygiene. (p. 416.)

A committee on Full-Time Secretary to be continued. (p. 419.)

Committee to Cooperate with Boy Scouts of Colorado to be continued. (p. 419.)

Resolution in regard to Colorado prohibition laws defeated on recommendation of Reference Committee. (pp. 415, 420.)

Constituent Societies requested to take action accepting program of A. M. A. for Medical Relief in Disaster. (p. 420.)

Memento of appreciation ordered for retiring Treasurer. Committee of three appointed. (p. 421.)

Treasurer authorized to invest \$500.00 in a bond. (p. 421.)

Ordered that Society petition proper railroad authorities for advance in date of sale of excursion tickets next spring, to make them available to Western physicians for A. M. A. annual session. (p. 421.)

Motion passed that railroads be asked to put the doctors on their employment rolls as full-time employees, making them eligible to receive passes. (p. 421.)

Election of Officers. (p. 421.)

Meeting place for 1927, Glenwood Springs (pp. 420, 421.)

Committee of three to be appointed by the President to evolve plan for constituent societies to follow in promotion of periodic health examinations. (pp. 417, 422.)

Treasurer to be under bond. (p. 422.)

Appropriation made for aid of Dental Profession in their campaign against pernicious proposed legislation. (p. 422.)

Resolutions of appreciation. (p. 422.)

MINUTES IN DETAIL

First Meeting of the House of Delegates, September 20, 1926

The meeting was called to order at 8:15 o'clock p. m., by Dr. George A. Boyd, President.

The Secretary called the roll from the accredited list of delegates. The President announced a quorum present.

By consent of the House, F. A. Jackson of Salida and Ella A. Mead of Greeley were seated in place of regularly accredited delegates from their respective societies.

On motion of L. M. VanMeter, duly seconded and carried, the minutes of the 1925 annual session as published in the December, 1925, issue of Colorado Medicine, were adopted without correction.

The report of the Committee on Credentials was called for and was read by the Chairman. The report is as follows:

REPORT OF COMMITTEE ON CREDENTIALS

No questions have been referred to this committee for decision in line with the duties delegated to it by the by-laws. No new charters have been applied for. The committee is prepared to act on any question of credentials that may be presented to it at this meeting.

A list of accredited delegates follows.

Society	Number of Members December 31, 1925	Delegates
Arapahoe	9	1
Boulder	44	2
Chaffee	7	1
Delta	20	1
Denver	530	22
El Paso	101	5
Fremont	22	1
Garfield	11	1
Huerfano	11	1
Kit Carson	9	1
Lake County	7	1
Larimer	26	2
Las Animas	22	1
Mesa	19	1
Montrose	8	1
Morgan	10	1
Northeast Colorado	24	1
Northwestern Colorado	11	1
Otero	26	2
Prowers	16	1
Pueblo	64	3
San Juan	18	1
San Luis Valley	14	1
Weld	32	2
Unattached	1	—

Total membership December 31, 1925, by

which apportionments
are made _____ 1,062
Total possible delegation _____ 55
M. L. JOHNSON,
HARRY A. JOHNSON,
F. B. STEPHENSON, Chairman.

The report was accepted and ordered placed on file.

The President then announced the appointment of the following temporary committees:

Reference Committee on Reports of Officers: G. P. Lingenfelter, W. W. Crook, R. E. Holmes.

Reference Committee on Reports of Committees: C. G. Hickey, L. V. Sams, L. W. Bortree, Chairman.

Reference Committee on Miscellaneous Business: C. F. Kemper, A. C. Holland, L. M. VanMeter.

Committee on Appropriations: J. G. Ryan, E. E. Evans, L. Little.

Nominations for members of the **Nominating Committee** were then called for by the President and the following delegates were placed in nomination: Harry A. Smith, Delta; C. G. Hickey, Denver; O. R. Gillett, Colorado Springs; R. C. Robe, Pueblo; T. C. Taylor, Fort Collins.

On motion of W. W. Crook, seconded and carried, the nominations were closed and the Secretary ordered to cast a unanimous ballot for the nominees. The secretary announced the ballot so cast.

The President then submitted a report which is as follows:

REPORT OF THE PRESIDENT

Gentlemen: The responsibilities of the medical men grow more onerous with advancing knowledge; more and more the individual doctor becomes a functioning unit in organized medicine. He is helpless to meet his obligations without the help given him by his society activities and associations, by the literature which contacts him with the scientific research and its practical application to his daily work. Conversely, organized medicine is equally dependent upon the continuous enthusiastic and purposeful activities of its members. Our contact with the social, industrial, political and religious activities of society is intimate and essential. All of these activities react upon the individual, either to help or hinder his physical health, his psychic life and character. We can never appreciate the problems of present day medicine until we have gained a fair knowledge of the interplay of these forces on the individual member of society.

The future of preventive medicine rests upon a proper understanding of these factors, and upon the courage of medical men to face facts and establish leadership in their correction when detrimental to health and happiness. Medical education has assumed an importance of first magnitude, and how to meet the problem is engaging the most serious efforts of our faculties. In our own state, through our own levy of taxes and the help of the Rockefeller Foundation, we have provided a medical plant adapted to the needs of medical education. Its future usefulness depends largely upon the response of the members of the Colorado State Medical Society. The present moment calls for our support of an anatomical law which will provide sufficient material for the anatomical department. Dr. Wallin has such a law already drafted, and we should give it our support. This is the last year that the Rockefeller Foundation will give

support to the School, and it will be necessary to increase our present rate of taxation from .05 of a mill to .1 of a mill. This would add the \$75,000 necessary for maintenance of the present standard, but it is very desirable to increase the number of students. At the present time it is possible to take only fifty-six in each class. By doing this we can both diminish the teaching costs and provide a needed increase of doctors. At present it costs \$950.00 for each student per year; of which he pays \$165.00. This year there were 71 applications of qualified men from the state of Colorado for entrance; and 38 from outside the state—making it necessary to exclude 63 applicants. Preference was given to the state applicants, only two being accepted from out of the state.

For our own immediate benefit we need to develop the post-graduate courses, and this can only be done by our attendance and support.

The American Medical Association has undertaken to establish periodic health examinations throughout this country. The preparation for this work must begin with the doctors themselves, and the County Medical Society is the logical starting point. I would suggest that the House of Delegates appoint a committee for the purpose of evolving a plan of practical demonstration, which may be presented as a basis for each county medical society in the state to begin work. As a means of educating the doctor and the public in the possibilities of preventive medicine a strict compliance with the Manual of Suggestions for the conduct of periodic health examination of apparently healthy persons as worked out by the special committee of the House of Delegates of the American Medical Association will establish a cooperation and sympathy between the doctor and the public that will permit him to use his knowledge to its fullest possibilities in the prevention and treatment of disease.

We need not fear the extinction of our profession through the application of scientific knowledge to the cure and prevention of disease. No martyrdom awaits the man who meets the demands of scientific medicine. Instead of extinction we make more necessary our particular work in society by exalting its functions, and making it more necessary for the existence of society.

GEO. A. BOYD.

Secretary Stephenson: "May I suggest, Mr. President, inasmuch as the President incorporates in his report some suggestions upon which he would like action, that the report, with this memoranda, be referred to the Committee on Reports of Officers for its consideration."

A motion to so refer, being regularly seconded and put to a vote, was carried.

The report of the Secretary was then read, and upon motion, referred to the Committee on Reports of Officers.

The report is as follows:

SECRETARY'S REPORT

Besides the regular routine of office recording and casual correspondence, the activities of the Secretary have included assistance with committee deliberations, county society visits, and work in connection with movements inaugurated by the American Medical Association, especially with regard to periodic health examinations and to the observation of legislative procedures in Washington. In the latter connection on several occasions representations have been made from my office to the senators and representatives

from Colorado in support of the policies of the American Medical Association. Pamphlets on periodic health examinations were ordered from the A. M. A. and distributed through this office, at the Society's expense, to all members. This question will be dwelt on by President Boyd during this session.

In only one matter advocated by the American Medical Association did I feel in doubt as to whether this Society should cooperate. That was the matter of the extension of the Sheppard-Towner Act, and in this case I referred the matter to our Committee on Social Medicine. This committee will no doubt cover the question in its report.

A number of other questions have been submitted to the Society from the American Medical Association and also from various state societies which have been laid aside as agenda for the House of Delegates at this session. These will be presented at the appropriate time.

The Committee on Cooperation with the State Pharmaceutical Association has apparently had nothing to do and in my judgment it should be left to the personnel of that committee as to whether or not a continuance of the committee's existence is justified. The committee has been continued from year to year as a special committee, having no standing in the by-laws of the Society.

Inquiries with reference to the formation of new constituent societies have been received from two sources. One from Dr. G. M. Gafford of Cheyenne Wells, stating that they were trying to organize a Cheyenne County Medical Society. Another one comes from Dr. J. A. Hipp of Olney Springs, Colorado. In both cases I have discussed the question with the applicants and have advised them the proper procedure in applying for a charter. If such applications are not presented at this session, I would recommend that the executive officers during the coming year thoroughly investigate these propositions.

A suggestion for the combination of the Montrose Medical Society with the Delta County Medical Society has been made and some correspondence carried on with the secretaries of both societies, but so far the proposition has not matured.

Statistical Report of Membership and of Receipts and Disbursements of the Secretary's Office

Reinstatements and New Memberships for Old Year

Society	Members	1925 Dues
Denver	2	\$10.00

Paid Membership for 1926

Society	Members	Society	Members
Arapahoe	8	Las Animas	25
Boulder	47	Mesa	17
Chaffee	6	Montrose	8
Delta	21	Morgan	14
Denver	535	Northeast Colo.	26
El Paso	101	Northwest Colo.	10
		Otero	23

Fremont	21	Prowers	16
Garfield	13	Pueblo	65
Huerfano	11	San Juan	20
Kit Carson	11	San Luis Valley	13
Lake	6	Weld	35
Larimer	28	Unattached	2

Total 1926 Memberships paid, 1,082, at \$5.00	1,082
	\$5,410.00

Total Receipts from Dues	\$5,420.00
Received from Colorado Medicine and remitted to Treasurer	3,910.77
Received from Federal Reserve Bank	2.00

Total receipts remitted to Treasurer	\$9,332.77
Charged back to Otero County, checks returned as uncollectable due to bank failure	110.00

Divided, General Fund	\$9,222.77
Special Fund for Education of Public	\$7,097.97
	2,124.80

Vouchers issued against General Fund	\$9,222.77
Vouchers issued against Special Fund	\$7,864.10
Vouchers issued against Spec. Library Fund	134.46
	35.90

Total Vouchers issued	\$8,034.46
Balance in Special Fund for Education of Public	5,769.86
Balance in Special Library Fund	381.87

Accounts due the Society

Federal Reserve Bank	\$ 6.00
International Trust Co.	1.00
Otero County Med. Society	110.00

Membership Analysis

Active members last report (1925)	1,042
New paid members 1926	66
Transferred in from other states, no dues	0
Reinstatements	27

	1,135
Died since without renewal	3
Dropped for non-payment transferred or resigned	50 53

Net paid memberships	1,082
Transferred out (dues paid)	6
Died (dues paid)	8 14

Net existing members	1,068
Active membership last report	1,042

Gain 26

Attention is called to the fact that our general fund is being depleted by the yearly vouchers against that fund. It is costing more to run the Society than the receipts will provide for as at present distributed.

Two dollars per capita goes to Colorado Medicine.

Two dollars per capita goes to the Special Fund.

Only one dollar per capita of the dues can be used for the General Fund, this year amounting to \$1,084.00 while the Treasurer's report will show an expenditure from that fund of \$512.15 for Secretary's office, \$150.00 for library, \$598.38 annual meeting and \$523.80 for Colorado Medicine deficit, making a total of \$1,784.33, or loss

to general fund of \$700.33. The annual meeting does not always cost so much, but may run more at times, and the expenditure as a whole is considered average. Furthermore, more secretarial help is needed.

As a remedy for this condition without increasing our dues I suggest the House seriously consider amending the by-laws which provide the Special Fund for Education of the Public in Medical Affairs so that beginning with 1927 dues, only one dollar of the five shall be credited to that fund and the other dollar be permanently diverted to the General Fund.

The Special Fund has now reached the sum of \$5,769.86 net and would appear to have sufficient bulk to meet the possible emergencies for which it was created. Additional accretion to that fund of close to \$1,100.00 a year by the one dollar per capita plan would probably suffice.

As my second term as Secretary of the Society expires with this session, I wish at this time to express my gratitude to the various constituent societies for their cooperation in matters referred to them for action, which has usually been prompt and in some instances eager. I particularly commend the attitude of one of our societies in gracefully bowing to the will of the Board of Censors in a controversy which arose over a question of local membership. In submerging its local preferences and acceding to the decision of a higher tribunal it has set an example for other societies which deserves record in our archives.

I have been astonished at the kindly disposition exhibited by so many of my superiors, my associates and even those with whom my contact has been only casual.

Friction has been wanting, while encouragement, trust and helpful advice have been furnished on every hand. I am very grateful.

F. B. STEPHENSON.

C. N. Meader then submitted the report of the Delegates to the American Medical Association, and on motion of W. H. Halley, regularly seconded and carried, it was referred to the Committee on Reports of Officers.

The report is as follows:

REPORT OF DELEGATES TO THE AMERICAN MEDICAL ASSOCIATION

To the President and House of Delegates:

The Dallas Meeting of the American Medical Association was a very successful one in all respects. While the attendance, 4,179, was not record-breaking, it was greater than that of any meeting save in the large centers of population. Colorado was represented by a registration of 89, exceeded by only 10 states. The section programs were excellent, well-balanced, carried out reasonably on schedule and contained much new work. The Motion Picture exhibit was as usual the center of much interest and the programs were instructive and well carried out. The Scientific and Commercial exhibits were well housed, conveniently arranged, and were as usual highly useful adjuncts to the programs. The Scientific Exhibit was especially noteworthy and comprehensive, occupying 25 per cent more space than at the Atlantic City Session. It is perhaps invidious to single out certain exhibits where all were well carried out and of great value but that of Dr. Aldo Castellani on the tropical mycoses, that in Immunology dealing with the Shick and Dick Tests and the preparation and use of diphtheria and scarlet fever antitoxins, and that of the U. S. Public Health

Service under Dr. Leake on the history, technique and interpretation of vaccination reactions were especially important.

The arrangements for the sessions were well planned and effectively carried out by the local Committee on Arrangements under the chairmanship of Dr. E. H. Cary and the physical facilities for the meeting proved excellent. The huge Manufacturers-Automobile Building, at Fair Park, a few minutes' drive from the center of the city, proved ample to house headquarters offices, exhibits of all kinds, and all save four of the section meetings, the latter being in closely adjacent buildings. The free and rapid access from one department of the meetings to another thus ensured did much to promote the convenience and profit of the members. The House of Delegates was comfortably lodged in the Roof Garden of the Baker Hotel with ample committee rooms nearby.

Special report of the entertainment features must not be neglected. Dallas amply upheld the traditions of southern hospitality, and, aside from formal entertainment, succeeded in making everyone at home. Dinners, lunches, breakfasts, receptions, balls, dances, concerts, golf tournaments, drives and many other functions were staged in rapid succession until between enforced absence from many of these and from the many good things of the Scientific program the harrassed delegate was tempted to throw duty to the winds and devote himself to pleasure and personal profit. Local color was added by the Barbecue and the Mexican Dinner, the former dampened but by no means discouraged by a rainstorm.

The work of the House of Delegates dealt with many matters of interest and importance to the Association and to the medical profession as a whole and the reports of officers there presented contained thoughtful discussions of many of the problems which must be solved by organized medicine. While it is to be hoped that every member of our House of Delegates and indeed of this Society, is familiar with these reports and proceedings as published in the Journal of the American Medical Association, it is pertinent to emphasize in this report certain of the more important features.

It is gratifying to note first that the financial condition of the Association is excellent, a reserve and surplus of \$432,589.91 being shown as of Dec. 31, 1925. It is interesting to observe that of the total gross income of the Association for 1925, amounting to \$1,277,453.28, only \$435,581.42 accrued from Fellowship Dues and subscriptions, the remainder amounting to \$841,871.86 being miscellaneous income, chiefly from advertising and other earnings of the Journal. Other special journals published are showing a gradual gain in circulation and, except two, are self-sustaining. In many respects Hygeia, constituting a vital link between the profession and the public is the Association's most important publication. Its circulation has shown a substantial increase during the past year but it is still altogether too little appreciated by physicians how significantly this magazine represents them before the public. Otherwise the number of physicians supporting it by their subscriptions and displaying it on their office tables would be much larger. In Colorado only 220 physicians and 182 of the laity now subscribe for Hygeia. In practically every division of the Association the work has grown and has increased in scope as well as amount. This has perhaps been especially true of the

Bureau of Investigation which is engaged in the exposure of medical fakery of all kinds and is now cooperating actively with more than forty branches of the National Better Business Bureau, besides an ever increasing advisory service to physicians, publications, teachers and the public generally, thus wielding an enormous influence for honesty in medical advertising. This effort at the education of the public in medical affairs is supplemented and extended by the work of the Bureau of Health and Public Instruction through pamphlets, posters, health exhibits and radio talks. It is doubtful if the average physician is even slightly aware how greatly his own work is being facilitated and his professional standing enhanced by this project of educating the public to discriminate between sound and conscientious and unsound, unscrupulous medical practice. The work of the Council on Pharmacy and Chemistry through its publication in the Journal and reprints thereof affords the physician authentic information regarding new therapeutic substance brought to his attention and, if conscientiously used, would save much illogical and harmful therapeutics. The Bureau of Legal Medicine and Legislation has been active in many matters of interest to the profession at large. Among these it has continued to act as a central clearing house for information regarding proposed medical legislation in all states and urges that local committees cooperate more fully by keeping it promptly informed of such proposed acts. A resolution was adopted by the House of Delegates specifically urging the State Societies to cooperate to the fullest extent in this matter with this Bureau and with the Board of Trustees. Its effort to have the narcotic tax reduced from three dollars to one was successful but its attempt to secure deduction from taxable income of traveling expenses to medical meetings was unsuccessful. It has successfully represented the profession in dealings with the National Prohibition Department, forestalled an unjustifiable ruling under the Harrison Narcotic Act, has been active in opposing the unwarrantable extensions of the Veteran's Act of 1924 and other still less justifiable extensions proposed at the last session of Congress, as well as in opposition to certain extensions of the principle of the Sheppard-Towner Act and has opposed the iniquitous Federal approval of Chiropractic Schools. The Council on Physical Therapy created at the Atlantic City Session has been organized and has begun the mapping of its field. Its personnel is guarantee that this subject will receive adequate study and its relations to the practice of medicine and importance, due emphasis. Such an authoritative study will do much to clarify the status of these modes of treatment and remove the reproach that medicine neglects any methods found practically useful in the hands of the cultists. The policy of making small grants in aid of chosen important pieces of research has again proved its wisdom by aiding the production of numerous highly useful pieces of work. The report of the Secretary showed a total membership as of March 1, 1926, of 91,792 members, a gain of 2,104 from the preceeding year, while the number of Fellows increased 2,493 in the same period. The unnecessary expense to which the Association, and incidentally, the State and County Societies are put by the failure of members to pay their dues at the specified time, with attendant bookkeeping in dropping and re-enrolling them was emphasized. This matter deserves

re-emphasis to members of this Society. The Committee for the Protection of Medical Research reports that "anti" campaigns of various kinds are steadily losing in strength and effectiveness as a result of measures promoted by this Committee and of the generally better public understanding of the issues involved.

The Committee on Medical Relief in Disaster presented a comprehensive report embodying a highly feasible plan of organization. This has been printed in full in the American Medical Association Bulletin and is commended to this House for its consideration. The voluntary assumption of this function by the medical profession would be certain to receive public commendation.

The Judicial Council in its report presented two important definitions for future guidance, as follows:

Contract Practice. By the term "contract practice," as applied to medicine, is meant the carrying out of an agreement between a physician or group of physicians as principals or agents and a corporation, organization or individual, to furnish partial or full medical services to a group or class of individuals for a definite sum or for a fixed rate per capita.

Allied Sciences. By the term "allied sciences," as applied to medicine, is meant those subdivisions of general science that are held by teaching institutions of standing and reputation conferring the degree of Doctors of Medicine to have a place in the professional education and training of a physician.

The Council also drew attention to the violation of ethics involved in the formation of various so-called "health associations" of "hospital associations" which solicit "members"—in other words, patients; and to the dubious nature of certain stockholding cooperative groups of physicians in which the stock is held by those referring patients. In a supplementary report the Council discussed at length the unfortunate situations arising out of failure of present by-laws to permit the Association and the State Societies discretion as to membership. Two forms of injustice may be worked, one in the case in which a desirable and eligible man is for unjust reasons refused admission to his local society and is thereby automatically denied membership in the State Society and the American Medical Association, the other in the case of the definitely unworthy member whom local indifference keeps in the County Society thereby automatically imposing him upon the State and National organizations without redress. An amendment to the By-Laws of the Association remedying this situation was proposed but on motion to table a tie vote resulted and the motion was lost. This matter is referred to elsewhere in the report of the Committee on Constitution and By-Laws of this Society. While their very nature precludes the frequent occurrence of such situations yet the circumstances surrounding a single case of this character might well be such as to cast serious doubt on the honesty of purpose of organized medicine and the problem is commended to this House of Delegates for its consideration.

The report of the Council on Medical Education and Hospitals reviewed the year's progress in these fields, noted the extensive use made of the Council's "Approved Lists" of schools, hospitals, colleges and clinical laboratories and the increased reliance placed upon them, emphasized the need of safeguarding further the licensure of foreigners seeking to practice in

this country and recommended the continuance of the present ruling that hospitals eligible to the approved list must admit to their staffs only graduates of approved medical schools. The Council further recommended, and the House of Delegates concurred, that there be created a "Committee on the Public Responsibility of the Medical Profession" to study the social relations of medical practice.

Under new business a resolution was adopted directing the Council to consider the feasibility of allowing medical students to take work for credit during the summer months thus shortening their total time in course and a resolution was adopted creating a Committee on Nursing and Nursing Education with a view to studying the problem of making Nursing Service more easily available to patients of moderate means. A resolution upon expert opinion evidence, substantially in accord with measures devised by a committee of the American Bar Association to correct present alleged abuses in the use of such evidence was adopted and the support of the Association in promoting legal enactment in accordance therewith was pledged. The amendment to the By-Laws advanced by New Jersey renewing the proposal for an ad interim meeting of the House of Delegates was lost. A resolution was adopted directing the Board of Trustees to assist the Judicial Council in a thorough investigation of contract practice including insurance companies who "purport as middlemen to sell medical services to the laity" and to report the results of this investigation together with recommendations as to policy at the 1927 session. The Board of Trustees was further directed in another resolution to aid and direct the profession in the various states in combating illegal practice by irregular practitioners. The proposed amendment authorizing sessions of the Association outside the United States was lost as was that providing official status for lay secretaries of State Associations. The same fate met the proposed amendment providing for the filling of vacancies in office by the Board of Trustees, and also that granting Affiliate Fellows subscription to the Journal without cost. A committee was created to conduct a survey to determine the facts relative to the possible need for the establishment of a home for incapacitated, dependent members of the profession, report to be made to the House of Delegates at the 1927 session. Approval was also voted to the project to secure nation-wide registration of births and deaths by 1930, and also of provision by public school authorities for periodic examination of the hearing acuity of all public school children. No report was made by the special Committee of the House of Delegates on the Model Constitution and By-Laws as this is before this and other State Societies this year for action.

The address of President Haggard stressed especially the importance of Periodic Health Examinations and proposed detailed plans for the consideration of constituent societies in promoting them. The importance of this movement, in line as it is with the rapidly growing expectation among the better class of patients that the sound physician should urge and practice preventive medicine cannot be too greatly emphasized and this Society should do all possible to facilitate adoption of it among its members. The address of President-Elect Phillips concerned itself mainly with the duty of the physician to become a "public health educator" and of organizing medicine to promote, in its

own interests quite as much as in those of the public, the better public understanding of medical affairs. Pursuant to these recommendations a resolution was adopted by the House of Delegates requesting the Board of Trustees to conduct a survey of "ways and means to best promote public health education."

If the atmosphere of a deliberative body may be summarized it would seem that the outstanding features of the 1926 Session were:

1. The obligation of cooperation of the State Societies with each other and with the Association in furthering the proper interests of medicine.

2. The duty and opportunity of the State and County Societies to enhance the scientific standing of the medical profession by well-thought-out programs and post-graduate activities.

3. The opportunity of every individual physician to serve the public and in so serving, serve himself, by the endorsement of preventive medicine, including periodic health examinations, and the utilization of all opportunities to promote sound public knowledge of medical affairs.

Respectfully submitted,
L. H. McKINNIE,
CHAS. N. MEADER.

The Treasurer submitted his report, which on motion was referred to the Auditing Committee. The report is as follows:

TREASURER'S REPORT
RECEIPTS

Forward from last report	\$7,646.39	
Secretary, Dues	5,285.00	
Colorado Medicine, adv., etc.	3,910.77	
Int. Savings Account	23.31	
Int. Liberty Bonds	42.50	
Int. Gold Bonds	180.00	
Return Fed. Reserve Bank	2.00	
		\$17,089.97

DISBURSEMENTS
Colorado Medicine

Western Newspaper Union	\$4,701.26	
Editor's salary	275.00	
Editor's Clerk's salary	550.00	
Editor's Commission	846.26	
Stationery and Incidentals	176.05	
Deposits P. O.	50.00	
		\$6,598.57

Secretary's Office

Salary Secretary	\$ 200.00	
Salary Secretary's Clerk	240.00	
Incidentals, Postage, etc.	72.15	
		512.15

Library

Books purchased from funds appropriated	\$ 150.00	
Books purchased from Spec. Library Fund	35.90	
		185.90

Annual Meeting

Reporting meeting	\$ 223.40	
Baltes Bros., badges, etc.	24.00	
E. D. Downing, incidentals	37.33	
Guests (Drs. A. N. Richards and H. P. Towle)	163.65	
	150.00	
		598.38

Treasurer's Office

Safety Deposit Box	\$ 5.00	
		5.00

Special Fund	
A. M. A. Health Manuals	\$ 119.16
Public lecture	15.40
	134.46
Total disbursements	\$8,034.46
Recapitulation	
Total receipts	\$17,114.97
Total disbursements	8,034.46
	9,080.51
Balance on hand	\$ 9,080.51
Balance made up as follows:	
Liberty Bond	\$1,000.00
Gold Bond	3,000.00
Savings Account	4,896.13
Commercial Account	184.38
	\$9,080.51
Distribution of Funds, Viz:	
Special fund for education of public	\$5,769.86
Special Library Fund	381.87
General Fund	2,928.78
	\$9,080.51
Balance on hand 1925	\$7,646.39
Balance on hand 1926	9,080.51
	1,434.12
Increase	\$1,434.12
Library Fund loss	\$ 39.83
Special Fund Gain	1,978.34
General Fund Loss	504.39
	1,434.12
Net Gain	\$1,434.12
Respectfully submitted,	
W. A. SEDWICK, Treasurer.	

Dr. Sedwick (supplementing his report): "We could stand the purchase of another \$500 bond. Of course, you know, we could sell a bond if we ever needed to do so, and we can get considerably more interest in that way, rather than letting the money stay in the savings bank. Unless you do as Dr. Stephenson has suggested, that is, take a dollar from the educational fund and transfer it to the general fund, your general fund is not going to last very long.

"I have had the office of Treasurer for twelve years, which is quite a long time. I feel that I cannot hold it any longer. I want to thank you very, very much for the compliments of these past twelve years."

The report of the Councillors was read by Ella A. Mead, and on motion of R. C. Robe, regularly seconded and carried, was referred to the Reference Committee on Reports of Officers.

The report is as follows:

REPORT OF THE BOARD OF COUNCILLORS

Your Board of Councillors has had but one matter brought to its attention during the past year.

This matter was in regard to the membership of Dr. Walter Hays of Sterling, Colo., in the Northeast County Medical Society. The Society refused to grant Dr. Hays membership unless he apologized for permitting the publication in local papers of the Report of the State Board of Medical Examiners and the State Board of Health in regard to some charges brought against one, Dr. Geo. W. Sprecher of Crook, Colo., for his careless and incompetent handling of an outbreak of scarlet fever in his community during the administration of Dr. Hays as Health Officer.

The Board of Councillors met in Denver at the time of the Clinics held at the State General Hospital and passed the following resolution:

"In the matter of the expulsion of Dr. Walter E. Hays from the Northeast Colorado Medical

Society, the Board of Councillors of the Colorado State Medical Society, being in session at Denver, Colorado, on March 24, 1926, all councillors being present, find as follows:

"After a careful survey of all facts and correspondence leading up to the expulsion of Dr. Hays, and a conscientious effort to separate prejudice and fact, the Board of Councillors unanimously resolve as follows:

"That all prejudice on both sides of this controversy be waived and that Dr. Walter B. Hays be reinstated as a member of the Northeast Colorado Medical Society, and that his expulsion is hereby annulled."

We understand that the Northeast County Medical Society withdrew their objections and that Dr. Hays has been granted his membership.

ELLA A. MEAD,
G. P. LINGENFELTER,
J. R. Espey,
W. W. CROOK,
A. J. NOSSAMAN.

President Boyd: The report of the Committee on Scientific Work is next in order, Dr. J. B. Crouch, Colorado Springs, Chairman.

REPORT OF COMMITTEE ON SCIENTIFIC WORK

Dr. Crouch: "I have no written report to make. The report of the Committee on Scientific Work usually is the program and the exhibits. I wish to state that the Committee has decided that it was greatly handicapped in securing visiting doctors to address the Society owing to the lack of funds, as Dr. Boyd has spoken to you about, and I think some provision should be made to take care of the expenses of visitors. Men doing research work are often men of limited means, men who are working simply for the joy of work, for the joy of accomplishing any good they can, men that have very little in the way of financial sustenance, and these men are the men we often like to get. Even a man with a good deal of means should be offered his expenses. I wish to state also that the scientific exhibits could not be carried on without Dr. Downing. He is the man you can thank for the exhibits on the outside, and the man who has put a great deal of time on this work.

"I hope at some time the Society will see fit to take the meeting away from Colorado Springs."

On motion, seconded and carried, this report was referred to the Committee on Reports of Committees.

Dr. Sedwick: "In reference to this last report, as our special fund for education of the public is growing apace, I would like to make a suggestion to the Committee to which this report goes, that some money might well be used out of that fund and in that way provide more money to get these men, whereas there seems no other way to get them here at the present time."

President Boyd: "That probably will be brought up in the Committee on Reports of Officers. The next order of business is the report of the Committee on Public Policy, Dr. Strickler, Chairman."

The report was read by D. A. Strickler, Chairman of the Committee, and is as follows:

REPORT OF COMMITTEE ON PUBLIC POLICY

Your committee begs leave to report:

1st. The following communication, which is

deemed self explanatory, was sent to Senators Phipps and Means and Representatives Taylor, Vaile, Timberlake and Hardy:

"Honorable Sir:

"On behalf of the Colorado State Medical Society, we wish to protest against socialistic experiments tried at the expense of the Medical Profession. This is now going on under Paragraph 10 of Section 202 of the World War Veterans Act of 1924. This provides that Veterans shall be furnished treatment upon application for admission to Government Hospitals irrespective of the cause of the condition, or whether it was in any way connected with medical service, or their financial ability to pay for treatment.

"We protest also against the adoption of bills now pending before Congress, which propose the extension of this free medical care to other classes of veterans, and civilian employees of the Government.

"This extension of free medical relief can only cause deterioration of the medical profession of the country, by turning from it those of high intelligence, initiative and self reliance; and in this way, work harm to the mass of the people, who are taxed to support this extension of governmental function.

"You are asked to do all in your power to secure the repeal of the part of the act mentioned above, and to prevent the adoption of other measures designed to take over for the paid officers of the National government a larger and larger proportion of the medical care of the people.

"Respectfully yours,

"COMMITTEE ON PUBLIC POLICY AND LEGISLATION,

"Colorado State Medical Society."

2nd. That while there are no bills bearing on public health as directly affecting the medical profession submitted to popular vote by the initiative or referendum at the coming election, there is a bill so seriously affecting the conditions of licensure for Dentists that all the learned professions should unite to defeat it. This initiated amendment will appear on the ballot under the title,

"An act to amend sections 4571 and 4574, compiled laws of Colorado of 1921, relating to the practice of dentistry, and to permit dentists duly licensed in other states to practice dentistry in Colorado without taking an examination before the Board of Dental Examiners of this state."

It provides for the licensure of any one who presents his credentials together with a license to practice dentistry in any other state and deprives the Colorado State Board of Dental Examiners of all discretionary powers. It is an effort fathered in the interests of one large advertising corporation only, with headquarters in California, and its passage would be a most dangerous precedent for like individuals in medicine. It should be met by the united opposition of the medical profession and all intelligent, right thinking people.

3rd. That needs of public health measures as seen by the Secretary of the State Board of Health are mainly more financial aid, as is manifested in the following communication from Dr. McKelvey:

"Dear Doctor Strickler:

"Complying with your request for information as to needed legislation covering the matter of public health in Colorado, I will say that very little legislation is needed. While a few

changes in the present law would be helpful I doubt the propriety of starting any move before the State Medical Society or elsewhere to make any important changes in the health laws.

"The State Health Department needs money and not much legislation. A list of the divisions of the state health department is shown below, along with two columns of figures, one showing amount of money now available for each fiscal year and one column showing the amount of money which should be appropriated for the successful operation of each division each fiscal year.

Divisions	Present Appropriation	Needed Appropriation
Administration _____	\$ 4,250.00	\$15,000.00
Epidemiology _____	1,200.00	7,000.00
Sanitary Engineering____	7,000.00	12,000.00
Food and Drugs_____	8,900.00	15,000.00
Bacteriology _____	6,650.00	8,500.00
Chemistry _____	None	State Univ.
Vital Statistics _____	1,500.00	7,000.00
Plumbing _____	Supported by Fees	Fees
Child Hygiene and		
Public Health Nursing	None	3,000.00
Social Hygiene _____	20,000.00	20,000.00
Total _____	\$49,500.00	\$87,500.00

"The above figures indicate a needed increase of \$38,000 which would bring a total of \$87,500. No less sum will be sufficient to operate efficiently.

"Yours very truly,

"S. R. McKELVEY."

Your committee recommend that additional funds be urged for the purposes indicated.

In the matter of legislation bearing on licensure to practice the healing art, your committee is of the opinion that no legislation should be asked for without first attempting to have persons favorable to higher educational and ethical standard elected to the legislative bodies and as definitely as possible, ascertaining that favorable action is probable before any change be asked. It is believed that however much better conditions may be desired, too much is risked in opening an act for an antagonistic body to amend. To this end we recommend that your committee on Public Policy, or if it be deemed better, a special committee appointed for the purpose be authorized to employ efficient assistance to supervise the campaign by and with the aid of the medical profession throughout the state. That such employment be for such time, up to and including the session of the legislature as may be found necessary to accomplish the desired results. This effort should include adequate financial support to public health and medical educational institutions. It is further recommended that a general title of a bill be introduced, the provisions of which may be filled in as may be deemed best to meet conditions arising during legislative session.

In case of high probability of favorable action and only under such conditions, it is recommended that a bill similar to the one sponsored by your committee of two years ago be introduced namely:

An act providing that no one shall be eligible to a license to practice the healing art who does not hold a diploma from a college recognized by the Colorado State Board of Medical Examiners.

The strength of our present medical practice act is largely discretionary power within the

jurisdiction of the board,—a discretionary power confirmed many times by the Supreme Court. Its weakness is mainly in the provision that anyone of good moral character is permitted to take the examination which must be written only. Two conditions which make it easily possible for a man of good memory and poor training, by short time but efficient coaching, to obtain a license. As a result Colorado is made the dumping ground for the products of low grade and fake schools. The danger in asking of an unfriendly legislature extended discretionary powers lies in the antagonism of all who wish to break the force of our present act by withdrawing its teeth as was so definitely manifested two years ago. The general principle of broad discretionary power in the Board of Medical Examiners should be carefully guarded, not abridged but extended if possible.

It is further recommended that a bill providing for annual registration of physicians and others holding licenses under the medical practice act be introduced. Such bill should provide for the distribution of a complete list of all registrants to each and every registrant showing the kind of license held by each, and should provide for sufficient means to investigate illegal practitioners. In making this recommendation your committee is fully aware that it may not meet with the approval of many physicians. We are of the opinion that in most cases opposition will be based upon a misapprehension of its purposes and possibilities for good to both the public and the profession.

Of the 7,500 to 8,000 physicians licensed in past years there is no official record of the men in practice or their locations. We should know both. This information should be available to

(a) The State Board of Health in checking up physicians reporting disease, deaths, etc.

(b) To the American Medical Association for the Directory and other purposes. Each edition of the Directory has many inaccuracies.

(c) To the Federal Prohibition Officer in issuing permits to prescribe intoxicating liquors. To the Secretary of State for like purposes.

(d) To the Department of Revenue in issuing narcotic permits.

(e) To the United States Bureau of Census. (Statistics of births and deaths must be signed by properly licensed physicians and midwives.)

(f) The county medical societies. Membership in county medical societies is dependent upon licensure.

(g) To county attorneys for evidence in enforcing the medical practice act.

(h) To every registrant so that he may know not only whether his neighbor is registered but something of where and when he graduated so that he may select his consultants with some care. Further, men practicing who are not of record will be reported to the Board or to the County Attorney. Licenses that have no termination frequently serve the purpose of fraud by one means or other long after their original owners are in their graves. Often no effort is made to get a license and the practitioner is not suspected in his community. As a means of better administration of the Medical Practice Act the provision for annual registration would be of inestimable advantage. At the present time annual registration either through tax laws or medical practice acts exists in Alaska, California, Delaware, Connecticut, Georgia, Idaho, Iowa, Louisiana, New York, North Carolina, Pennsylvania and Utah. Many other states are considering the matter. Practically all ex-

ecutive officers advocate annual registration.

All of which is respectfully submitted.

W. W. KING,

EDWARD JACKSON,

M. JEAN GALE,

O. M. GILBERT,

J. CRUM EPLER,

DAVID A. STRICKLER, Chairman.

On motion, seconded and carried, this report was referred to the Committee on Reports of Committees, with the suggestion by the President that the Committee give it very careful consideration.

As the next order of business, the report of the Committee on Publication was read by T. E. Carmody, and, there being no objection, was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF THE PUBLICATION COMMITTEE

Since the last annual session of the House of Delegates of the Colorado State Medical Society there have been published twelve issues of COLORADO MEDICINE, aggregating 760 pages of printed matter, including the covers. Of this space, 458 pages were devoted to reading matter and 302 pages to advertising. The reading matter included 67 original articles of which 27 were read at the last session of the society. The Wyoming State Medical Society published 6 articles and 7 editorials which are included in the above report.

There were 30 pages devoted to Editorial Comment; Reports of Societies and News Items, 31 pages; Book Reviews, 20; while the Proceedings of the House of Delegates, Membership List, Colorado Authors, etc., occupied approximately 36 pages.

The editorial policy, choice of material, treatment of subject matter and arrangement are or should be, familiar to the membership and represent the endeavors of the editor with the co-operation of the Committee.

The cost of publication of the twelve numbers was \$6,598.57 being an average of approximately \$550.00 per issue.

The revenue accrued to the Journal is derived from two sources; namely, the per capita appropriation from the annual dues of Colorado members, subscriptions from Wyoming State Medical Society of \$2.50 per member, and the receipts from advertising, amounting to \$6,074.77. The per capita appropriation amounts to \$2,164.00 for Colorado and \$310.00 for Wyoming and the receipts from advertising amount to \$3,600.77. Books were closed 1925 on September 18th; 1926, September 1st.

Recapitulation

Appropriation (\$2.00 per capita) Colo.	\$2,164.00
Wyoming Subscriptions	310.00
Advertising, sale of copies, etc.	3,600.77
	<hr/>
	\$6,074.77

Expenditures

Salary of Editor	\$ 275.00
Salary of Editor's Clerk	550.00
Printing and mailing of Colorado	
Medicine	4,751.26
Commissions on Advertising	846.26
Incidentals, subscriptions, etc.	176.05
	<hr/>

\$6,598.57

Deficit \$ 523.80

Last year's report included advertising collections to September 18th. The present report

ends with September 1st which accounts for the major part of the deficit.

The Journal has had the extra revenue of the Wyoming subscription but the flat increase of 20 per cent in the advertising rates as by agreement with the Cooperative Medical Advertising Bureau will not go into effect until January 1, 1927.

The committee desires to extend to the editor, Dr. C. F. Kemper, the thanks of the Society for his work in maintaining the high standards of Colorado Medicine.

WM. H. CRISP,
C. S. BLUEMEL,
T. E. CARMODY, Chairman.

C. N. Meader then submitted the report of the Committee on Medical Education, which, without objection, was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF THE COMMITTEE ON MEDICAL EDUCATION

To the President and House of Delegates:

During the past year, medical education has busied itself very largely with details of technique and method. The principle of close physical integration of laboratory and clinical facilities has been generally accepted and the ambition to possess such a complete teaching group, with as many associated clinical units as possible, has become so widely diffused that new projects are incubating everywhere and the improvements in the educational mechanism, actual and potential, are really astounding.

This physical progress has not been so dazzling however as to obscure the need for improvement in the less tangible and interesting but equally important curriculum. With the rapid expansion in the subjects directly ancillary to the practice of Medicine and the wealth of new knowledge poured in her lap from fields less directly related, he who would purvey these riches to the medical student must needs have a ruthless judgment and a nice discrimination. Enthusiasm for one's field of work, whether in the laboratory or in a special field of practice, does not customarily promote these virtues and he must be a heavy-handed Dean indeed who would dare discourage enthusiasm wherever it may be found in the Medical Faculty. Some overloading and lopsidedness of the medical curriculum are of course inevitable results. Hence medical education is consciously in the early stages of another evolution,—that of weeding out the essential from the unessential facts to be presented the student, of determining what he must know for a groundwork and what we may safely trust our stimulation to induce him to acquire after graduation and of presenting him with a compact body of knowledge to which he must add persistently as long as he shall practice. A better balance in the curriculum is much needed, and this project will be greatly stimulated and aided by the work of the recently created Commission on Medical Education, under the Chairmanship of President A. Lawrence Lowell of Harvard.

The total number of medical students enrolled last year was 18,840, an increase of 640, and the number of medical graduates 3,962, practically the same as the preceding year, of whom 94.2 per cent were graduated by Class A colleges. The tendency of these graduates to locate in the larger cities, leaving a dearth of rural practitioners still engages attention and has even led to some demand that present stand-

ards of medical education be lowered. The balance of evidence however still suggests that this is chiefly a problem of distribution, not of total numbers. Certainly the project of deliberately providing a class of less well-trained physicians seems most unwise. Any slight inadequacy in the total number of medical graduates which may exist can undoubtedly be met first by better utilization of present facilities through some mechanism by which prospective qualified students unable to gain admission to the school of their choice may be informed of existing vacancies elsewhere and second by enabling competent and ambitious students to hasten the date of their graduation by carrying work for credit during the usual summer vacation period as is now commonly done in colleges of arts and sciences. Both these methods are being promoted by the Council on Medical Education and Hospitals of the American Medical Association, the latter under resolution of the House of Delegates at the Dallas Meeting, and the co-operation of the medical schools is to be expected.

In our own state the School of Medicine is working along lines in harmony with these trends and is making quiet but definite progress. The various units of the School and the Hospitals are functioning more and more smoothly together and it is significant that the spirit of serious work and the morale of the student body are excellent. Statistically the School is forging ahead rapidly in enrollment, in number of graduates and in number of applicants for admission, has indeed this fall more first year applicants than can be received. Moreover the respect which it commands nationally in medical education is steadily increasing. Its first venture into the field of short post-graduate work by means of the four-day clinic held in the Spring of 1926 proved more successful and seemed more appreciated than could have been anticipated. It is hoped that this may be but the beginning of further and more extensive service as a post-graduate center for the medical profession of the State, and it is recommended that this Society and the School act in close harmony in the promotion of such work.

Respectfully submitted,
FREDERICK M. HELLER,
JAMES J. WARING,
CHAS. N. MEADER, Chairman.

Dr. Meader: "Supplementing the report of the Committee on Medical Education, I wish to say that the Committee does not include in this formal report any comment on the legislative program with reference to the School of Medicine, because it was understood that Dr. Boyd, the President, was to take that up in his own report. The Committee, however, heartily seconded what Dr. Boyd has said about these matters.

"The situation in anatomy is critical. There is no provision by law by which the School of Medicine can secure cadavers for purposes of instruction, and it is perfectly obvious that you cannot teach anatomy unless you have cadavers with which to teach students. The School has an insufficient number to even provide for the first year class. The passage of an anatomical law, such as has been proposed, was considered two years ago, because the situation was foreseen, but upon the advice of members of the Legislature, who are decidedly interested in the School of Medicine, it was not thought best at that time to push the matter because it was thought that it would interfere with the rest of the program. This year it will be attempted.

"With regard to finances, as Dr. Boyd has said, the Rockefeller Foundation will cease to help us this year, and unless that amount is made up by the Legislature, the income of the School of Medicine, which is already barely enough to take care of the number of students enrolled there, will be cut substantially in half. Both those matters deserve, and should command, the most energetic support of not only the members of the House of Delegates, but every member of the State Society."

The report of the Committee on Social Medicine was read by R. P. Forbes, and without objection was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF THE COMMITTEE ON SOCIAL MEDICINE

Your committee has nothing of much importance to report. As Dr. Love, Chairman of this Committee, reported last year, there is little opportunity for such a committee to cooperate either with authorized State agencies or private organizations in dealing with communicable diseases or promoting health education. Furthermore this Committee is hardly in a position to take part in discussion of that paramount issue—State Medicine. There has been much discussion recently concerning the relation of organized health agencies, dispensaries, etc., to the private physician. Any sane solution of this delicate problem must include the authorized cooperation of lay leaders as well as physicians.

The Secretary of this State Society received a communication from the American Medical Association urging our Society to take an active part in blocking the continuance of the Shepard-Towner program. This request was referred to our Committee. Not being able to communicate immediately with the other members of the Committee your Chairman took the liberty of advising against any immediate action in this matter, because in Colorado the Shepard-Towner program has functioned differently than in many Eastern States, having effected a happy cooperation between the various statewide agencies doing health education work in this State. All the work done by these agencies has been with the permission and cooperation of the local physicians who have frequently profited by the health conferences.

It is an open question whether this Committee should be continued. Unless a more definite program can be suggested it is not anticipated that a Committee on Social Medicine can at present perform any useful function.

Respectfully submitted,

J. J. PATTEE,

J. A. WENK,

ROY P. FORBES, Chairman.

In the absence of W. A. Jayne, the Secretary read the report of the Committee on Medical Literature, which was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF COMMITTEE ON MEDICAL LITERATURE

Your Committee on Medical Literature reports an addition of 96 volumes to the Society's Library during the eleven months from October 1, 1925 to September 1, 1926. Sixty-eight (68) were received through Colorado Medicine for review and 28 volumes were purchased at a cost of \$185.90. The amount expended exceeded the yearly appropriation of \$150.00 by \$35.90

and was paid out of the Reserve Library Fund of \$417.77 leaving a balance in this fund of \$381.87.

Your Library now contains a total of 1,554 volumes, 1,529 of which are accessioned and 25 still in the hands of reviewers and not yet accessible to readers.

The Library is being more and more used each year by members residing outside of Denver, both by application by mail and by personal visits.

Very few copies of the Society's Jubilee Volume, Coloradoana, have been sold and there remain stored on our shelves a large number that are a burden in their present state. There has never been any definite call for the book and there appears little prospect of disposing of them. Your Committee suggests that it be authorized to give them away to members or others who may desire them; or, that a committee be appointed to make an effort to sell them. A decision on this matter is requested.

The Committee requests a continuance of the usual yearly appropriation of \$150.00 for the purchase of books.

The following is a list of the books added to the Library since the report of last year.

Books Purchased for the State Medical Society

Library October 1, 1925 to September 1, 1926

United States Pharmacopoeia (10th rev.)

Vincent—Endocrinology.

Christi—Roentgen Diagnosis and Therapy.

Osler—Modern Medicine (3 vols. rec'd to date).

Steindler—Operative Orthopedics.

Osler—Practice of Medicine.

Frazier—Surgery of the Spine.

Codman—Bone Sarcoma.

Enfield—Radiography.

Campbell and McLeod—Insulin.

Kanaval—Hand Infections.

Eycheshymer and Jones—Clinical Anatomy.

Hare—Therapeutics.

Elsberg—Tumors.

Bland—Gynecology.

Baur—Aviation.

Berkeley—Endocrines.

Drew—Individual Gymnastics.

Glueck—Mental Law.

Greene—Diagnosis (2 volumes).

Hajek—Nasal Accessory Sinuses (2 volumes).

Crile—A Bipolar Theory of Living Processes.

Moorehead and Dewey—Pathology of the Mouth.

Sheehan—Plastic Surgery of the Nose.

Books Received Through Colorado Medicine

October 1, 1925 to September 1, 1926

Jayne—Healing Gods of Ancient Civilization.

Hirst—Manual of Gynecology.

Wolf—Principles of Surgery for Nurses.

Lord—Diseases of the Bronchi, Lungs and Pleura.

Fishbein—Medical Follies.

Copher—Methods in Surgery.

Bram—Goiter, Non-Surgical Types and Treatment.

Martel—Pseudo-Appendicitis.

Graham—Empyema Thoracis.

Ruhrh—William Cadogan (his essay on gout).

Sansum—The Normal Diet.

McMillon—Massage and Therapeutic Exercise.

Bowers—Manual of Psychiatry.

Jordan—Text-book of General Bacteriology.

Lilienthal—Thoracic Surgery (2 volumes).

Stewart—Skull Fracture.

Moynihan — Abdominal Operations (2 volumes).

Dutton—Intravenous Therapy.

Hamilton—An Introduction to Objective Psychopathology.

Pratt and Bushnell—Physical Diagnosis of Diseases of the Chest.

Morse—Applied Biochemistry.

Brown and Sampson—Intestinal Tuberculosis.

Hanson—Practical Helps in the Study and Treatment of Head Injuries.

Simmons—Art and Practice of Medical Writing.

Allen—Treatment of Kidney Diseases and High Blood Pressure.

Dunlap—Old and New Viewpoints in Psychology.

Webb—Recovery Record for Use in Tuberculosis.

McClendon—Physical Chemistry in Biology and Medicine.

Garrison—Anatomic Illustration.

Riesman—Thomas Sydenham.

Franke—Ocular Therapeutics.

Duke—Asthma and Hay Fever.

Abt—Pediatrics.

Turner—Personal and Community Health.

Boyd—Preventive Medicine.

Pottenger—Visceral Disease.

Palfrey—Art of Medical Treatment.

Stewart—Physiotherapy.

Schamberg—Compend of Diseases of Skin.

Miller—Tonsils.

Mayo Foundation—Lectures on Nutrition.

Mayo Foundation—Our Present Knowledge of Heredity.

Pettibone—Physiological Chemistry.

Savage—Ophthalmic Neuro-Myology.

Sauer—Nursery Guide for Mothers and Children.

Balyeat—Hay Fever and Asthma.

Peck—Ears and the Man.

Kleinberg—Scoliosis.

Mayo Clinics—Collected Papers 1924.

Henry Ford Hospital Collected Papers.

Surgical Clinics of North America (6 volumes).

Medical Clinics of North America (6 volumes).

Practical Medicine Series (4 volumes).

Transactions—College of Physicians, Philadelphia.

SUMMARY

Number of volumes in Library Oct. 1, 1925 _____ 1,458

Volumes received through Colorado Medicine _____ 68

Volumes purchased _____ 28 96

Total volumes in Library, September 1, 1926 _____ 1,554

Cost of volumes purchased \$185.90

Paid from the appropriation 150.00

Excess above appropriation \$ 35.90

Library Reserve Fund, October 1, 1925 \$417.77

Excess charged to above _____ 35.90

Balance in Library Reserve Fund September 1, 1926 _____ \$381.87

Respectfully submitted,

W. A. JAYNE, Chairman.

GERALD B. WEBB,

The report of the Committee on Hospitals was submitted by C. N. Meader, and on motion was referred to the Reference Committee on Reports of Committees.

The report is as follows:

REPORT OF THE COMMITTEE ON HOSPITALS

To the President and House of Delegates of the Colorado State Medical Society:

Your Committee has not found it necessary to undertake the detailed inspection of any hospitals during the past year; and its work has been confined to correspondence with the Council on Hospitals of the American Medical Association. This correspondence has been largely concerned with furnishing supplementary information regarding certain hospitals which might throw additional light upon their eligibility to the Approved List, or upon their facilities for interne training. Numerous inquiries of this sort have been received, investigated, and the information forwarded; and in one instance your Committee was perhaps of service to the Staff of a municipal hospital in which the problem of cult members placed on the staff was troublesome.

Respectfully submitted,

CHAS. O. GIESE,

WILBUR T. LITTLE,

CHAS. N. MEADER, Chairman.

The reports of the Committees on Military Affairs, and the report of the Committee on Careers of Members were passed, owing to the absence of the respective chairmen.

C. N. Meader then submitted the report of the Committee to Study Model Constitution and By-laws.

The report is as follows:

REPORT OF COMMITTEE ON CONSTITUTION AND BY-LAWS

To the President and House of Delegates of the Colorado State Medical Society:

Your Committee, appointed at the last meeting of the Society to consider the Model Constitution and By-Laws proposed by the House of Delegates of the American Medical Association, and suggest any changes which might seem desirable therein, and also to examine the Constitution and By-Laws of the Colorado State Medical Society in the light of the proposed Model Constitution and By-Laws to determine whether this Society might wisely make any changes in its own, begs to submit its report in two parts. Wishing to utilize the familiarity with the present machinery of the Society gained by Dr. F. B. Stephenson in his work as Secretary, your Chairman has asked him to meet with the Committee and to sign this report.

PART I. Your Committee unanimously offers the following suggestions, criticisms and comments on the Model Constitution and By-Laws as proposed by the House of Delegates of the American Medical Association:

Suggestions for Committee Report on New Model Constitution and By-Laws Proposed by the A. M. A.

Constitution

Article III. After "county" insert "or other," thus embracing all types of component society, and avoiding longer alternate clauses.

Article VIII. Should contain provision for number of days' notice of coming meeting required, and for method of notification.

Article IX, Section 2. Wisdom of making terms of such responsible officers as the Councillors longer (5 years) and electing one a year should be considered. This would ensure continuity of policy and a preponderance of experienced members on the Council.

Article X, lines 8 and 9. Provision that House of Delegates must approve all recom-

mendations of expenditures as made by the Council makes House a rubber stamp in this important matter, and seems to this Committee of doubtful wisdom. At least it cannot be recommended for this Society.

By-Laws

Chapter IV, Section 1. Suggest that provision be made for length of residence of Councillor in his district (3 years?) in order to insure familiarity with local problems and (presumably) respect of district members.

Chapter XI, Section 3, line 5. After words "Sectarian medicine" insert "or whose practice is not shown to be in conflict with the Principles of Ethics of the American Medical Association." Just as important that practice be ethical as that it be non-sectarian; and unless County Societies have the specific backing of the State Society, they are less likely to act in matters of discipline involving troublesome questions of ethics.

Chapter XI, Section 10. Suggest that it be amended to provide for a local Committee on Public Policy of each Constituent Society as a standing committee to cooperate with the same committee of the State Society as provided, but also to take initiative in local matters involving interests of the medical profession or the public health and the education of the public in medical affairs. Such local problems will inevitably arise in which the State Committee will be unable to act with desirable promptness, will perhaps not act intelligently because of lack of knowledge of local problems, or should not be called upon to act because the strictly local nature of the situation would unnecessarily divert its attention from its proper sphere of statewide interests. Moreover, a local committee, trained by dealing with local matters, will prove a more useful adjunct to the State Committee when needed. Integration of effort might be promoted by having the Chairmen of the County Society Committees members of the State Committee.

It was unanimously voted by the Committee that a copy of these comments be forwarded to the Secretary of the American Medical Association, together with a copy of the Constitution and By-Laws of this Society, with the revision thereof recommended by this Committee.

PART II. Your Committee has scrutinized the present Constitution and By-Laws of this Society, both in the light of the model submitted and in that of the experience of this Society since the revision of 1921. As a result, several changes appear desirable, either to clarify certain points or to promote smoother functioning; and your Committee accordingly unanimously recommends that the following revision be adopted:

Constitution

Article II, line 9. After "State Medicine" insert "and public health." This is in accordance with the purposes expressed in the Articles of Incorporation, and gives broader warrant for the activities of the Committee on Public Policy.

Article VIII, Section 1, line 4. Capitalize the word "trustees."

Article VIII, Section 2, line 4. Delete the words "after the election in 1917."

Article XII, line 4. After the word "such" insert "proposed."

Ibid, line 5. Delete the words "presented in open meeting at the previous annual session, and that it shall have been."

By-Laws

Chapter III, Section 1, line 4. After "twenty

members" insert "of the House of Delegates."

Chapter VIII. Insert as New Section 1 the following: "In the interim between the annual sessions of the House of Delegates, unless the House shall be called in special session, the Trustees shall have charge of the general business of the Society. To this end they may take such action, not in conflict with any action of the House of Delegates, as may be necessary to meet unforeseen situations, and may fill vacancies in offices and committees not otherwise provided for, pending the next meeting of the House of Delegates."

Renumber present sections 1, 2, 3, and 4 to read sections 2, 3, 4, and 5, respectively.

Note. The Committee is unable to find any provision in the Constitution or By-Laws which would legalize acts of the officers of the Society on its behalf, save as pertains strictly to their respective offices. It would seem highly desirable that the Society provide an ad interim body with authority to meet unforeseen situations. The Articles of Incorporation settle such authority upon the Trustees, and it should be provided for in the By-Laws.

Chapter VIII, Section 2 (new numbering) line 13. After "special committees" insert "and shall be ex-officio a member of all committees. The President-elect shall be ex-officio a member of the Board of Trustees."

The Committee feels that the President-elect may wisely be specifically authorized to take an active part in the conduct of the affairs of the Society during this portion of his term.

Chapter VIII, Section 3 (new numbering), line 1. After "The Vice-Presidents" insert "who shall be known as the First Vice-President, Second Vice-President, Third Vice-President and Fourth Vice-President."

Ibid, line 4. Delete "one of them shall officiate in his place" and substitute "or."

Ibid, line 5. Write "In" as "in."

The present section is ambiguous in that no definite descent of official responsibility is provided, an omission which might prove serious were the clause to be called into action.

Chapter IX, Section 1, line 5. After "councillor districts" insert "Each Councillor must have been a resident of the district for which he is elected for at least one year next preceding his election; and his permanent removal from that district shall automatically vacate his office."

Chapter XII, Section 3, line 17. Delete "three"; write "five."

Chapter XIII, Section 5, line 9. After "medicine" delete "shall be entitled to membership" and insert "or whose practice is not shown to be in conflict with the Principles of Ethics of the American Medical Association, is eligible to membership."

Chapter XIII. Insert as New Section 5, the following: "Each Constituent Society shall annually appoint or elect a Committee on Public Policy, and the Secretary of the Constituent Society shall promptly forward the names and addresses of the Committee to the Secretary of this Society. Such local Committee on Public Policy shall concern itself locally with all matters relating to legislation affecting the medical profession or the public health and with the education of the public in medical affairs, and shall cooperate with the Committee on Public Policy of this Society."

Chapter XIII. Renumber present Section 5, after revision as above, "Section 6."

Chapter XIII. Insert as new section 7, the

following: "It is provided further that a member of the Constituent Society, whose license to practice medicine has been revoked, shall be dropped from membership in this Society automatically, as of the date of revocation; and that the Council of this Society, upon satisfactory evidence that a member of a Constituent Society has been guilty of violation of the Constitution and By-Laws of this Society or of the Principles of Ethics shall have power to discipline or expel such member from this Society, regardless of the action of the Constituent Society."

Renumber the present Section 6 as Section 8, and present Sections 7, 8, 9 and 10 as Sections 9, 10, 11 and 12.

Chapter XIII, present Section 7, renumbered Section 9, line 4, after the word "shall" insert "upon his being duly elected."

Chapter XIII, present Section 7, renumbered Section 9, line 13. Delete "demit" and write "transfer."

It is further recommended that in all future printings of the Constitution and By-Laws of this Society, the Articles of Incorporation, copy of which is made a part of this report, be also printed, preceding the Constitution and By-Laws.

Respectfully submitted,
MELVILLE BLACK,
W. H. CRISP,
F. B. STEPHENSON,
CHARLES N. MEADER, Chairman.

The following discussion was had on this report:

Secretary Stephenson: "Before disposing of this report, may I make an announcement. I want to call the attention of the House to the fact that this is a very important matter which has to be acted upon at this session. It is a long, detailed report, and there are a lot of data there that have to be followed very carefully. This special Committee devoted a great deal of time to the study of our by-laws. It is a question whether you will want to refer this to the Committee on Reports of Committees, or to a specially appointed committee, or whether you might want to act upon it without reference to a committee. These various amendments are amendments to the by-laws, mostly."

Dr. Meader: "Some of them are amendments to the constitution and would have to lie over a year."

Secretary Stephenson: "The majority of them are amendments to the by-laws, and they must lie on the table for a day before they can be finally acted upon. As you will note, the report is in two parts. The first part is the report of the work which occupied the Committee's attention with regard to a model constitution which the American Medical Association submitted for our opinion. The Committee's work is finished on that score. They have reported to the American Medical Association their observations and their suggestions, as they were requested to do."

"The second part of the report refers entirely to suggested changes in our own constitution and by-laws. I have had made mimeograph copies of this report, and they can be passed out to all the members; and I have enough copies of our present constitution to pass out to you, so that everybody can follow it through, having at hand our own constitution and by-laws, together with the suggested changes."

A lengthy discussion as to the method of disposing of this report and as to a possible ad-

dendum providing explicit authorization in the by-laws of the payment of expenses of invited guests at the annual sessions, culminated in the passage of a motion by A. C. Holland that the report be accepted and that action upon the proposed amendments be made the first order of business on Wednesday morning, and that the Committee reporting be ordered to draft an amendment providing for the payment of guests' expenses by the Society.

A report of the Special Committee to consider a Full-Time Secretary was then called for. In the absence of the chairman, the report was read by Edward Jackson.

The report is as follows:

REPORT OF THE COMMITTEE ON AN ALL-TIME SECRETARY

Your Committee, with the assistance of Secretary Stephenson, considered thoroughly the question of an all time secretary. Dr. Stephenson assisted us materially by presenting a list of all the state societies employing all time secretaries as well as the correspondence that he had had with a number of these gentlemen. This assistance on his part helped your Committee very much in arriving at its conclusions. The statistics secured by Dr. Stephenson are presented with this report to be filed with it for future reference, if needed.

The duties of the secretary are year by year becoming more arduous. The requests for information by the American Medical Association are time consuming and our secretary finds it impossible, in many instances, to do them justice. It is apparent to your Committee that the time is not far distant when this society will find it necessary to employ someone to devote his entire time to the secretaryship. We need such an officer now. The difficulty is to finance it. We are probably not ready to double our annual dues. This will have to be done before we can afford to pay such an officer a living salary.

In the meantime we would recommend that the part time secretary be continued, that we allow him to employ a part time assistant at a salary of five hundred dollars a year and that we continue to pay the secretary two hundred dollars a year, as at present. The five hundred dollars for the payment of a part time assistant to the secretary would be more than met by the one dollar per capita to be withdrawn from the fund for Educating the Public in Medical Affairs and put into the general fund as recommended by Secretary Stephenson in his report. We might mention that this five hundred dollars would, in this way, be used as appropriately as though expended directly along the lines for which it was created.

MELVILLE BLACK, Chairman.
EDWARD JACKSON,
BYRON B. BLOTZ.

On motion, the report was referred to the Reference Committee on Reports of Committees.

A report of the Committee to Cooperate with the Boy Scouts was read by E. B. Swerdfeger, and on motion seconded and carried, was referred to the Committee on Reports of Committees.

The report is as follows:

REPORT OF THE COMMITTEE TO COOPERATE WITH THE BOY SCOUTS OF COLORADO

Your committee to confer with Boy Scouts of Colorado reports as follows:

We have held several meetings some of which were with the Chief Scout Executive, the Chairman of camping committee, and one with the Council of Camp Fire Girls.

Some of the things accomplished are, all boys examined before going to camp, this required spending the greater part of an evening every other week. By this examination we discovered three Diphtheria carriers. The menu for the camp was supervised, an admission certificate was worked out, is here attached. Letters and copies of the certificates sent to every Scout Executive in the state, also a few out of the state. The building of the hospital at Camp Lemen, was supervised, medical attendants supplied at Camp Lemen, also one for the Greeley camp. We were able to secure the assistance of several other physicians in making our examinations, among them A. H. Miller, J. E. Struthers and C. G. Hickey.

While we feel that we have accomplished much, we also see a great deal that might be done and would like to suggest that a similar committee be appointed for next year, and that the committee is given the names of some of the members of this Society who would be willing to go to one or more of the various Scout camps and give talks to the boys along health lines.

Respectfully submitted,
E. B. SWERDFEGER, Chairman,
H. S. CANBY,
TRACY R. LOVE,

Committee.

President Boyd: "Is there any new business?"

Dr. Halley: "Mr. Chairman, I have been asked to present a resolution to the delegates by some of the Denver physicians. I do not father it, and do not care what becomes of it. The motion is, 'Whereas, the Colorado state law governing the prescription of liquor by physicians is at variance with the National law; therefore, BE IT RESOLVED, That the Colorado State Medical Society in the Annual Session of 1926, does hereby endorse any change that would harmonize the National and State Prohibition Laws.'"

President Boyd: "What is your will?"

Dr. Robe: "In order to bring the matter before the House, I move its adoption."

Dr. Lingenfelter: "I second the motion."

President Boyd: "It has been moved and seconded that we adopt the resolution as read. Is there any discussion?"

Secretary Stephenson: "The resolution has no signature."

Dr. Halley: "I will sign it."

Dr. Bortree: "As I remember that resolution, it says that we would sponsor anything that was done to make our law conform to our National law. I think that is rather a broad recommendation."

President Boyd: "Have you any further comments on the resolution?"

On a substitute motion, it was decided that this resolution be referred to the Committee on Miscellaneous Business.

There being no further business, the meeting was adjourned.

Second Meeting of the House of Delegates, September 21, 1926

The meeting was called to order at 8 o'clock a. m., by the president, Dr. Boyd.

The Secretary called the roll and announced a quorum present.

Under the head of New Business, H. A. Smith presented a resolution to effect that the Colorado State Medical Society petition the proper Bureau of the United States Government to rescind its order prohibiting the spraying of fruit trees with arsenical preparations until the Public Health Service of the United States shall have fully investigated the question.

The resolution was formally passed.

The Secretary then read a letter from the Medical Society of the State of New York, enclosing a copy of their new Medical Practice Act. This letter was referred to the Committee on Public Policy.

A letter from the Louisiana State Medical Society with enclosure of certain resolutions adopted by that Society, and requesting that they be brought to the attention of the County Medical Societies in Colorado, was read, and on motion of R. E. Holmes, regularly seconded, the communication was referred to the Committee on Public Policy.

(The resolutions voiced a protest against the granting of Doctor of Public Health degrees to laymen by educational institutions, and denounced any broad policy of appointing lay public health officials.)

The Secretary then read a communication from the American Medical Association enclosing a copy of the report of its Committee on Medical Relief in Disaster, adopted by its House of Delegates at the 1926 Annual Meeting.

On motion of C. G. Hickey, regularly seconded, the communication and enclosures were referred to the Committee on Miscellaneous Business. (See p. 420.)

A letter from the American Medical Association was read by the Secretary, it having reference to the Hygeia exhibit.

The Secretary read a letter from the Secretary of the San Juan Medical Society with reference to a new Charter, as follows:

"The San Juan County Medical Society was organized at Silverton, Colorado, November 25, 1907, and given a charter, no date, by H. B. Whitney, President, Melville Black, Secretary of the State Society. Meetings were held in Silverton until January 22, 1920, when, at a meeting held in Durango, the name of the Society was changed to the San Juan Medical Society, comprising the coalescence of San Juan, Archuleta, La Plata, Montezuma and Dolores, also the northern part of New Mexico not having a society.

"The San Juan Medical Society has never received a charter. I called the members' attention to this and was instructed to write you. I believe we should have a new charter.

"H. A. LINGENFELTER, Secretary."

Secretary Stephenson: (Continuing) "As Chairman of the Committee on Credentials, whose business it is to investigate matters of this kind, I feel the Society ought to be accommodated and given a charter that meets with its desire. But it will require the action of the House."

Harry A. Smith: "I move, Mr. Chairman, that the charter be issued."

C. G. Hickey: "I second the motion."

The motion being put to vote, was carried.

The Secretary then read a letter from the American Medical Association summarizing six or seven bills to come up before the National Congress, some favorable and some unfavorable to the medical profession.

On motion of Dr. Hickey, regularly seconded, the communication was referred to the Committee on Public Policy, for report.

A communication was then read from Dr. Franklin G. Ebaugh, requesting that a Committee on Mental Hygiene be appointed.

On motion of C. G. Hickey, regularly seconded, the incoming President was authorized to appoint a Committee of five, as requested.

The letter is as follows:

"September 13, 1926.

"Dr. George H. Curfman, President-Elect,
Colorado State Medical Society,
Salida, Colorado.

"My dear Dr. Curfman:

"During the past two years since the Psychopathic Hospital has opened I have been studying the problems of the state regarding mental diseases and it seems extremely important that all practitioners of the state should realize the important preventive aspects of mental diseases and that Psychiatry at the present time is not a study of the end products of insanity but aims to treat mental diseases in their incipency and thus prevent the disaster of mental deterioration so common in the past. I wish therefore to submit for your consideration the question of having a committee appointed for mental hygiene from the state society. It would seem that this committee would play a very important role to further the facts now available regarding mental hygiene.

"The scope of this committee would be to take care of the following details which it seems to me can only be accomplished with the backing of an active, state medical society and I do not believe there is a superior society or that any state will have men more interested and more energetic in putting over a public health program than the ones that I have met throughout the state during the past two years. I believe that this program is practical in that we have had the opportunity of visiting 41 separate communities in the state during the past year in our Traveling Clinic work. The purposes of this committee are suggested as follows:

"1. **Educating the public:** Through addresses, radio talks, moving pictures, exhibits, literature, magazines and newspaper articles—as to the nature, extent, causes, treatment and means for the prevention of nervous and mental diseases and defects.

"This means obtaining competent volunteer speakers. Each man to choose his own phase of the subject and address interested groups of all kinds in all parts of the state, and establish close contact with all social organizations.

"2. **Promote the establishment** for the effective operation of free medical clinics, especially in connection with state and other hospitals.

"3. **Instituting courses of instruction** in the recognition of the elementary problems of mental health for groups of teachers, nurses, social organizations, college and medical students.

"4. **Promoting remedial legislation** and bringing to the attention of the public and public officials the facts about the prevalence of mental and nervous diseases and defects, and about financial and other matters of the state institutions for the mentally diseased, epileptic and feeble minded.

"5. **Organizing mental hygiene divisions** in the larger cities throughout the state in order that the campaign in these localities may be more intensively carried out.

"6. **Conducting studies in various communities** to determine the extent within their borders of such health problems as mental diseases, delinquency, feeble mindedness, with a view to securing proper treatment facilities for combating these conditions.

"7. **Maintaining for general use** a collection of literature as well as a current index and complete bibliography on the subject, and up to date information in regard to the progress made in other countries, states and counties, in the care, treatment and prevention of mental diseases and defects.

"8. **Inaugurating a consultation service** for the purpose of giving free advice to relatives and friends as to the prevention, treatment and disposition of patients suffering from mental diseases, and defects, and in furnishing to the public general information as to the proper use of those state institutions already provided for mental causes.

"I appreciate your giving the organization of this committee your consideration and look forward to seeing you at the State Medical Meeting.

"Very sincerely yours,

"FRANKLIN G. EBAUGH, M.D.,

"Director,

"Colorado Psychopathic Hospital."

There being no further business before the House, the meeting adjourned.

Third Meetings of the House of Delegates, September 22, 1926

The meeting was called to order by the President, Dr. Curfman, at 8 o'clock a. m.

The Secretary called the roll and announced a quorum present.

The reading of the previous minutes was dispensed with.

As a special order of business, the matter of the revision of the Constitution and By-Laws was taken up.

President Boyd: "How will you handle this matter?"

By-Laws Amended

L. W. Bortree: "I move that the by-law changes as proposed be read and acted upon one at a time."

The motion being regularly seconded, and put to a vote, was carried.

After some discussion about procedure, the changes, as suggested by the Committee to Study a Model Constitution and By-laws, were read seriatim, and on motion, seconded and carried, the amendments to by-laws were adopted, as recommended by the Committee: the amendments to the Constitution to lie over for action at the next annual session.

On motion by Dr. Bortree, regularly seconded, the changes which had been adopted separately, were adopted as a whole.

Dr. Meader, as Chairman of the Committee to study Model Constitution and By-Laws, presented a supplementary report. On motion of Harry A. Smith, seconded by G. P. Lingenfelter, this supplementary report was laid on the table.

The report is as follows:

SUPPLEMENTARY REPORT, COMMITTEE ON CONSTITUTION AND BY-LAWS

Sept. 22, 1926.

To the President and House of Delegates:

Pursuant to instructions from the House of Delegates at its meeting the evening of September 20, your Committee on Revision of the Constitution and By-Laws presents the following supplementary report.

1. Attention is called to the Constitution, Article IX which would seem to give ample warrant for any expenditures not expressly forbidden.

2. Your Committee is unable at this time to find evidence of any action of this House continuously prohibiting the expenditure of funds to pay the expenses of invited guests and is of the opinion that the above-mentioned article of the Constitution amply confers authority to do so.

3. However, should the House of Delegates wish to ensure such authority the following is proposed:

Amend the By-Laws, Chapter X, by inserting as a new section to be numbered 9, the following:

"At each annual meeting of the House of Delegates the President shall appoint such reference and other committees as may be necessary to properly conduct the business of the House of Delegates. These shall include an Appropriations Committee whose duty it shall be to recommend expenditures for the ensuing year or in connection with the current session, not otherwise provided for. All previous acts or By-Laws in conflict herewith are hereby repealed."

4. Your Committee notes that no provision is made in the By-Laws for the appointment of Reference Committees by the President. It therefore recommends that the above section with the last sentence deleted be adopted to provide this authority.

In the absence of Drs. Black and Crisp this report is signed by the two members of the Committee present at this session.

Respectfully submitted,
CHAS. N. MEADER, Chairman,
F. B. STEPHENSON.

(The report was tabled.)

G. W. Miel, as Chairman of the Auditing Committee, submitted the report of that Committee, and on motion, seconded and carried, the report of the Committee was adopted.

The report is as follows:

REPORT OF AUDITING COMMITTEE

We, the Auditing Committee, find the accounts of the Treasurer as recorded, correct.

Our fund is now large. As is usual with financial agents, and in accord with treasurers, we regard it in order to supply a treasurer's bond and offer this suggestion for approval.

Dr. Sedwick, elected in 1914 to the office of Treasurer, has served faithfully and well at considerable demand upon his time, without recompense. Now finishing his fourth term, we are informed he desires to conclude his service and pass the responsibility. In such event this Society has opportunity to express appreciation of valued services efficiently rendered.

GEORGE W. MIEL,
FRANK L. DENNIS,
JOSEPH J. MAHONEY.

L. W. Bortree then submitted the following motion:

"In accordance with the recommendation made by the Auditing Committee, and as a token of gratitude of the State Society, for the twelve years' extremely laborious and efficient services, I move that the House of Delegates authorize the expenditure of a sufficient sum to make a tangible recognition in some material way to the retiring Treasurer for his efficient services."

The motion being seconded and put to a vote, was carried.

W. A. Sedwick: "Mr. Chairman: I want to thank the Society very much indeed for this appreciation. However, I was glad to serve the Society. I think it is generally understood that I expected no recompense, and it has been a very great pleasure for me to do it. I still feel that there is no reason why I should be paid. However, I would be ungrateful if I did not tell you how very, very appreciative I am just the same. Thank you very much."

G. P. Lingenfelter then submitted the report of the Committee on Reports of Officers.

The report is as follows:

REPORT OF COMMITTEE ON REPORTS OF OFFICERS

Report of Secretary

We, your committee, urge revision of the By-Laws:

1. Permitting two dollars per member, each, to be paid into general fund, and one dollar into the special fund.

2. In the opinion of your committee, the Committee on Cooperation with the State Pharmaceutical Association should be discontinued.

3. We, your committee, urge the advisability of authorizing the Treasurer of the Colorado State Medical Society to buy a \$500.00 Gold Bond paying 6 per cent interest from funds in the Special fund, and urge the proper resolution therefor.

President's Report

In view of the fact that this is the last year, that support for the state school of medicine and state hospital will be received from the Rockefeller Foundation, we urge that all diligence be used upon the part of the Committee upon Legislation, and that each member of the Colorado State Medical Society take this matter up personally with their state legislators, to secure ample appropriation for the proper maintenance of the above institutions.

Regarding an Anatomical Law. We, your committee, would respectfully urge the support by every member of the State Society through their state legislators of the proposed bill by Dr. Wallin, providing for anatomical material for the State School of Medicine.

Periodical Health Examinations: We recommend that the House of Delegates appoint a committee of three to evolve a plan for the County Medical Societies to follow in bringing about periodical health examinations in their several counties throughout the state.

Provision for paying personal expenses of invited guests of the Society: We, your committee, recommend that the Colorado State Medical Society's by-laws be so changed or amended as to provide a means of paying the personal expenses of its invited guests, and as a means to that end, urge a resolution be introduced at the present meeting for the purpose sought.

Councillors' Report

We, your committee, do hereby commend the Northeast County Medical Society upon the settlement of the recent controversy in their Society in the question of local membership and bowing, in the interests of harmony, to the decision of the Board of Councillors in the matter.

Report of Delegates to A. M. A.

We, your committee, wish to compliment our delegates to the A. M. A. upon the complete and full report of the recent meeting held in Dallas, and wish to express the thanks of the entire

Society to Drs. McKinnie and Meader for their classic document.

We move the adoption of the several reports.
G. P. LINGENFELTER,
W. W. CROOK,
R. E. HOLMES.

After a discussion of the report, Dr. Holmes stated that the provisions in the report relative to the expenses of guests at the State meeting, and the abolishment of the Pharmaceutical Committee, would be withdrawn.

In summarizing the report of the Committee, the Secretary stated: "The report of the Committee on Reports of Officers, as I have it now, stands that the authors of the report withdraw section 2, which recommended the discontinuance of the Committee to cooperate with the Pharmaceutical Association; they also withdraw the section which provides for amending the By-laws to permit the Society to pay the personal expenses of invited guests. That leaves the report of the Committee otherwise intact."

On motion, seconded and carried, the report of the Committee, with the exceptions noted, was adopted.

The report of the Nominating Committee was then submitted by H. A. Smith, and is as follows:

REPORT OF NOMINATING COMMITTEE

Your Committee on Nominations begs to submit the following nominations:

For President, Wm. A. Sedwick, Denver.

For First Vice-President, W. A. Kickland, Ft. Collins.

For Second Vice-President, H. T. Low, Pueblo.

For Third Vice-President, H. F. Lorimer, Towner.

For Fourth Vice-President, John McDonough, Gunnison.

For Secretary, F. B. Stephenson, Denver.

For Treasurer, L. W. Bortree, Colorado Springs.

For Delegate to American Medical Association, T. E. Carmody, Denver.

For Alternate, Ralph H. Johnston, La Junta.

For Councillor, W. W. Crook, Glenwood Springs.

For Member Publication Committee, C. S. Elder, Denver.

Signed,

H. A. SMITH, Chairman,

C. G. HICKEY, Secretary.

At this juncture the regular order of business was temporarily suspended while the House was addressed by Dr. Morris Fishbein, Chicago, Editor of the Journal of the American Medical Association, viz:

"Mr. President and members of the Colorado State Medical Society: I have listened to the transactions of the House of Delegates with great interest. During the past year I have visited six state medical societies as an officer of the American Medical Association, and I will say that the House of Delegates of the Colorado State Medical Society acts more expeditiously on the matters of business before it, and apparently with a clearer understanding of those matters of business, than any of the Houses of Delegates of any of the other state societies I have visited. I say that in all seriousness. The other societies included Minnesota, Maine, Wyoming, Montana and many others.

"I have been much interested in listening to the report of the changes in your constitution and by-laws. I was hoping that someone would

get up and object to the election of four vice-presidents. I have somehow or other always been distressed by the superfluity of four vice-presidents. I do not know whether the extra three do anything in this Society. I remember when General Dawes was elected Vice-President it was said that he would make his office a factor in public life, but even Dawes seems to have sunk into the oblivion of being a Vice-President. I have always felt that one vice-president in good health was all that any society could stand.

"The importance of your action on the relief of distress cannot be over-estimated. I have been reading closely the reports of the situation in Florida. That is another demonstration of how necessary it is in times of such disasters to have some one person fully familiar with the necessity for proper organization to take charge. Already Florida is becoming inhabited with committees sent there by all sorts of unofficial bodies, newspapers, magazines, the Red Cross, and dozens of other organizations. We had a hurricane in Illinois not so long ago, and the first ones sent there were four representatives furnished by a Chicago newspaper, and the mortality was frightful—perhaps due to the fact that these men were absolutely unfamiliar with the preventative methods to be used in such times in relation to typhoid and other preventable diseases. These conditions are matters that must be controlled by official bodies. It is well for the President of each state society to inform himself fully as to the proper agencies to work in such cases, and to see to it that those agencies get into operation as soon as possible. I believe that one of the most important actions that organized medicine can undertake is in connection with this matter of relief in distress. I was also interested in your committees to cooperate. Cooperation is one of the essential things. You can cooperate with the pharmacists, the nurses, and a dozen other like bodies interested in medical affairs. I believe that these committees are of the greatest importance, because unless you do know what the other fellow is doing it is awfully hard to oppose him, when that seems necessary, or to work with him, or to obtain his assistance when that is desirable. However, I believe that these committees should not be permitted to remain inactive. A report should be demanded of the committee at each session of the House of Delegates, and if cooperation has not been secured at times when it seems desirable, a more active committee should be formed. I can see the desirability of cooperation with every organization interested in scientific medicine in connection with legislation. For instance, I am quite sure that the aid of the pharmacists can be secured in every case when it is necessary to secure proper legislation for scientific medicine.

"I have been more than interested in the discussion as to the expenses of guests. I am very glad to inform you that the expenses of officers of the American Medical Association who are guests to the State Medical Societies, are paid by the Headquarters Office. I thank you."

The regular order of business was then resumed.

Crum Epler: "Mr. President. It has been the custom, not a written one, of the Colorado State Medical Society, for some years, whenever a delegate to the American Medical Association is making good, to continue him in office for the purpose of keeping Colorado, as one of the small states, in line with what was going on in

the American Medical Association. Having that in view, and having further in view the results obtained with men who have had successive and continuous terms as delegates in this body, I desire to nominate to succeed himself, Dr. C. N. Meader, as delegate from this state to the A. M. A. for the coming two years."

President Curfman: "Do you wish to nominate an alternate at the same time?"

Dr. Epler: "No."

Secretary Stephenson: "The nomination has been placed on record."

There being no further business before the House, an adjournment was taken until one o'clock p. m.

Adjourned Meeting of the House of Delegates, September 22, 1926

The meeting was called to order at one o'clock p. m., pursuant to adjournment, by the President.

L. V. Sams presented the report of the Committee on Reports of Committees.

The report is as follows:

REPORT OF COMMITTEE ON REPORTS OF COMMITTEES

Your Committee on Reports of Committees, after due deliberation submits the following report for your consideration:

1. Report of Committee on Public Policy and Legislation.

The initiated bill affecting the Dental profession of the State which is to come before the people at the next election, providing that any one who presents his credentials together with a license to practice dentistry in any other State may be licensed to practice his profession in Colorado without taking an examination before the Board of Dental Examiners, is pernicious, and we heartily concur in the recommendations of the Committee that it should be met by the united opposition of the Medical profession.

We further concur in the recommendation that additional funds be urged for the proper administration of the several departments of our State Board of Health; that an attempt at medical legislation should not be made until we are convinced that we have legislative bodies in accord with our principles; that the time for instituting such measures be left with the present Committee.

We are in accord with the principles of annual registration of physicians, and believe that a campaign of education should be started at once to acquaint the profession with its advantages and necessities, this effort to be carried on through the medium of our State journal, through our constituent societies and by personal appeal, and that definite action be taken at our next annual meeting to place it in operation.

We further recommend that this Committee form a close relationship with the Committee on Public Policy and Legislation of the organized Dental Profession of the State, whose aims are in accord with ours, and with whom an alliance can bring naught but profit to both.

2. Report of the Publication Committee.

We wish to commend the Publication Committee and the Editor of Colorado Medicine for their untiring and efficient service. Although a slight deficit for the year is reported, we are convinced that the funds have been dispensed with care and good judgment.

3. Report of Committee on Medical Education.

This important report should be carefully studied by every member of our society. We heartily approve of the close harmony being manifested between the faculty of our medical school and the profession at large, and recommend any measures tending to increase this sentiment. The postgraduate four day clinic was heartily approved, and we recommend a continuance of the same as a means of great profit to both teacher and student.

We further recommend that the Committee on Medical Education cooperate fully with the Commission on Medical Legislation under the chairmanship of President Lowell of Harvard, and with the Medical Faculty of our school, and that they also lend their support to the efforts of the Council on Medical Education and Hospitals of the American Medical Association.

4. Report of Committee on Social Medicine.

The Committee on Social Medicine observes that they are a committee without a definite objective, and suggest that the committee be discontinued. Inasmuch as their observation appears correct, and that their work is probably covered by other committees, we concur in the suggestion of the committee and recommend its discontinuance.

(This recommendation withdrawn by the Committee after discussion.)

5. Report of Committee on Medical Literature.

We recommend that the yearly appropriation of \$150.00 be made to the library fund for the purchase of books.

We further recommend that the remaining copies of the Society's Jubilee Volume, Coloradoana, be distributed without cost to the members of our society or others who may desire them, in order to make room on the library shelves for other material as recommended by the committee.

6. Report of Committee on Hospitals.

We commend the action of the committee in its assistance to the Council on Hospitals of the American Medical Association in the problem of standardization of hospitals, and in its efforts in behalf of the hospital whose staff was disturbed by cult members.

7. Annual Report of the Committee on All Time Secretary.

We approve the opinion of the Committee that a full time secretary is needed at this time. We also are fully aware that it is impossible to indulge in this necessity at this time. We recommend that plans be laid at once to meet this problem which will demand solution within the next few years. To accomplish this, we further recommend that a committee under the present hearing be continued.

To meet the demands of the present upon the secretary's office, we concur in the recommendation that the secretary be permitted to employ a part time assistant at a salary of \$500.00 a year, and that we continue to present the secretary with \$200.00 a year as a "piece" offering.

We are in accord with the suggestion of Secretary Stephenson that one dollar of the dues be assigned to the special fund, and that two dollars be assigned to the general fund.

8. Report of Committee to Confer with Boy Scouts of Colorado.

We commend the efficient work of this Committee, and recommend its continuance.

We also suggest that the Committee endeavor

to enlist the active support of a greater number of our profession in this laudable work.

Respectfully submitted,

L. W. BORTREE, Chairman,
CLINTON G. HICKEY,
LOUIS T. SAMS.

After discussion, the Committee, through its chairman, and with consent of the other members, withdrew section 4 of its report.

On motion, seconded and carried, the report of the Committee was adopted, with the exception noted, the Committee on Social Medicine, instead of being discontinued, to be continued, in order to cooperate with other agencies when its services may be called for.

At this point R. C. Robe rose to a point of personal privilege and denied the validity of the report of the Nominating Committee, of which he was a member, the report not being unanimous on the part of the Committee and signed by the Chairman and Secretary only. After discussion, President Curfman postponed a ruling on the validity of the report. (Later accepted. —Sec.)

REPORT OF THE REFERENCE COMMITTEE ON MISCELLANEOUS BUSINESS

The Reference Committee on Miscellaneous Business begs leave to submit the following report, with recommendations: Two matters were referred by the House of Delegates, one a proposed resolution in relation to the variance between the National Prohibition Laws and the Colorado Prohibition Laws in their provisions governing the prescribing of liquors by physicians. This resolution was presented by Dr. William Halley and signed by him. Your Committee recommends that this resolution be not adopted.

We give unanimous approval to the plans for emergency medical relief in disasters, as adopted by the House of Delegates of the American Medical Association, and published in the American Medical Association Bulletin of June, 1926. We respectfully recommend approval of the plan, and that we give assurance to the American Medical Association of our cooperation in carrying out the plans, and we recommend that the constituent societies of the Colorado State Medical Society promptly take similar action, and notify the Secretary of this Society of such action.

Signed,

L. M. VAN METER,
A. C. HOLLAND,
C. F. KEMPER.

Dr. Van Meter: "I move the adoption of the report."

The motion being regularly seconded and put to a vote, was carried.

President Curfman: "Is there anything under the head of unfinished business?"

Dr. Earl Whedon (Wyoming): "Mr. President; This noon in talking with Dr. Fishbein, he said to me, 'I wish you would head off any action on the part of the House of Delegates in regard to Medical Defense. We have received your correspondence, and we have taken it up through our Advertising Department, who have asked the Fort Wayne Medical Defense Association to supply us with a very frank statement of their position, and if that position does not correspond to the ideas that all of us have, as to the proper course of that Association, then we shall refuse them advertising in our journal.' Now I think it is no more than fair to the Fort Wayne institution that we wait awhile. It is

certainly contemptible, when you consider that our President has carried insurance in that company for sixteen years, for them to withdraw from the State of Wyoming. It is a financial loss to him, and he has got to look elsewhere. Of course, in our Society we have a Medical Defense provision. They laughed at us a few years ago when a society of 125 members started out to create a Medical Defense Fund; but it is a fact that we have \$3,000 in our treasury, and we have not had a single suit brought in the State of Wyoming against any man since that institution was started. Now, we do not pay indemnity if a man is sued. We do not defend every man that may be sued. Our Association simply looks into the case through a committee from our Society, and if a man is in the wrong it is up to him to settle with the patient that he has injured, just as man to man ought to do, but if he is in the clear, then we supply him with the best legal talent we can secure, and we all volunteer to offer our testimony, and then we carry the case to the Supreme Court if necessary. Now, that can be done.

"When we proposed in our Society to raise the dues of \$2 to \$10, they said we would not have any organization. Our organization is stronger today than it has ever been. I believe you in time will come to the same decision. If a society is worth anything to you, it is worth more than \$2, it is worth more than \$3, and when you get on that plan you can have a full-time secretary."

Crum Epler: "Mr. President: The matter I have to speak of, I approach with a little bit of delicacy in view of my numerous good friends in Colorado Springs, but I feel that this matter should be discussed a little bit before this House of Delegates. At the meeting three years ago there was a desire to see how it would do to centralize the meeting place of the Colorado State Medical Society in Colorado Springs. It was decided that for three years the meetings would be held in Colorado Springs to see how it would work out. Denver at that time had not had a meeting for several years, and it was decided that the next meeting should go to Denver, which was the 1924 meeting. As a matter of recollection—and I probably may be wrong—because I have been advised otherwise recently—it was then said that Colorado Springs would try it for two years instead of three. The meeting we had last year, and the one we have here this year, speak well for themselves. They also show you what a laborious duty there is connected with getting them up, the major portion of which devolves upon the Entertainment Committee in this locality. I am not wholly in favor of working a tired horse to death by continuing this another year at Colorado Springs, and from suggestions which I have heard, I do not believe that our entertainers would feel offended if this Society should move it to another place for the next year, at least, even if they wanted to come back and have it here year after next. I think it would be proper to give a respite, and it would give the Colorado Springs men an opportunity to get away from home and enjoy the medical meeting. . . . The intent was to have this as the regular meeting place if the scheme worked out sufficiently well, and was not too burdensome to those in Colorado Springs. I am inclined to believe that it is becoming a burden already upon them."

After some discussion favorable to the proposed change, Dr. Epler moved that the next annual session be held at Glenwood Springs.

The motion was regularly seconded.

H. W. Stuver: "Mr. Chairman: Inasmuch as Colorado Springs was designated for a three year term, and Dr. Epler has been so kind as to relieve them by this motion of their three-year term, temporarily, I would like to amend that motion that the next session following the one at Glenwood Springs be held at Colorado Springs."

Dr. Epler: "I will accept the amendment."

Dr. Crook: "I want to say for Glenwood Springs that we would be mighty glad to have you there, and we will give you all the entertainment you want."

The motion was put by the President and was unanimously carried, as amended.

Dr. Meader then submitted an additional report of the Committee on Revision of By-Laws, which, upon motion, seconded and carried, was adopted.

The report is as follows:

SUPPLEMENTARY REPORT OF COMMITTEE ON CONSTITUTION AND BY-LAWS

It is recommended by your Committee that the following amendment to the By-Laws be adopted:

Chapter xii, Section 2, line 6. Delete "\$1.00" and write "(2.00)". Line 6, delete "and" and insert a comma. Line 8, delete the period and insert a comma, following which add "and one dollar to be devoted to the Fund for the Education of the Public in Medical Affairs to be expended as authorized by the House of Delegates."

All amendments in conflict herewith are hereby repealed.

In the absence of Dr. Black and Dr. Crisp this report is signed by the two members of the Committee present.

CHAS. N. MEADER, Chairman,
F. B. STEPHENSON.

The amendment proposed in the report was tabled for final action on the following day. (Adopted, p. 422.)

The House of Delegates then recessed to meet immediately at the close of the Scientific Session the same afternoon, at five o'clock, or as soon thereafter as practicable.

Second Adjourned Meeting of the House of Delegates

The adjourned meeting of the House of Delegates was called to order at five o'clock p. m., by the President, Dr. Curfman.

Secretary Stephenson: "A resolution was passed this morning authorizing the Society to expend an appropriate sum to make an offering to the retiring Treasurer, but no means was provided for carrying this out."

Dr. Sams: "I so move, Mr. President, that a committee of three be appointed."

The motion being regularly seconded, and put to a vote was carried.

The President then appointed the following delegates as a Committee:

G. L. Kerley, L. W. Bortree, G. P. Lingenfelter.

Secretary Stephenson: "Mr. Chairman, the Reference Committee which reported on the Treasurer's report suggests or advises that a motion be passed authorizing the Treasurer to make an investment of \$500 in a six per cent bond."

Harry A. Smith: "I move that the Treasurer be empowered to buy a \$500 bond out of the surplus in the treasury."

The motion being regularly seconded, and put to a vote, was carried.

With reference to the report of the Nominating Committee, the validity of which had been brought up at the previous meeting of the House of Delegates, the President ruled that the report of the Committee would be accepted.

Secretary Stephenson: "Just before I left Denver, Dr. Moleen, who has always interested himself in railroad affairs in connection with the meeting of the American Medical Association, asked me to get the House of Delegates to take some action about railroad fares to Washington next spring. It is much preferable to have a plan by which the doctor can buy his complete round trip ticket at reduced rates, instead of paying the full fare one way and getting a certificate for the half fare return. It seems that there are excursion rates which go into effect near the time of the meeting, but too late to be utilized by the doctors in the West. The House of Delegates could petition the proper railroad officials to advance the date on the sale of these special excursion rates so that they will be applicable to the A. M. A. Convention."

On motion of Dr. Fowler, regularly seconded, it was voted by the House that a petition be formulated to be presented to the railroad officials asking for an advance in date of the sale of excursion rate tickets.

The motion being seconded by Dr. Lingenfelter, and put to a vote, was carried.

Under the head of new business, it was moved by H. A. Smith that the railroads be asked to put the doctors on their employment rolls, as full-time employees, in order that they might be eligible to receive passes.

The motion being seconded by G. P. Lingenfelter, and put to a vote, was carried.

There being no further business, the meeting adjourned.

Fourth Meeting of the House of Delegates, September 23, 1926

The meeting was called to order at 8 o'clock a. m., by the President, Dr. Curfman.

The roll was called and the Secretary announced a quorum present.

The minutes of the previous meetings were read by the Secretary, and approved.

President Curfman: "The next order of business is the election of officers. I will ask the Secretary to read the report of the Nominating Committee."

The report of the Nominating Committee was read as requested. (See page 418.)

President Curfman: "Nominations are in order from the floor at this time. Are there any additional nominations?"

(No response.)

Dr. Meader: "Mr. President: I consented to allow my name to be presented from the floor as a candidate for delegate to the American Medical Association. Since that time it has become apparent that a situation has arisen, which indicates to me that I would not represent the Colorado State Medical Society at present, and I therefore wish to withdraw my name."

Secretary Stephenson: "There remains, then, Mr. President, only one nominee for each of the offices."

It was moved and seconded that the Secretary cast the ballot for the nominees as recommended by the Nominating Committee.

The motion was put by the President and unanimously carried.

The Secretary then announced the ballot so cast.

The Secretary then submitted a proposed amendment to the By-laws tabled the previous day from a supplementary report of the Committee on Revision of By-Laws, and referring to Chapter xii, Sec. 2.

On motion, regularly seconded, the amendment was adopted. (See page 421.)

Dr. Ryan then presented the report of the Appropriations Committee, which, upon motion, seconded and carried, was adopted.

The report is as follows:

REPORT OF COMMITTEE ON APPROPRIATIONS

The Committee on Appropriations submits the following report for your consideration and recommends that the herein mentioned appropriations be allowed.

Annual Meeting Expense	
Reporting annual meeting	\$250.00
Guests	500.00
Annual meeting incidentals, badges, programs, etc.	150.00
Total	\$900.00
Secretary's Office	
Secretary's salary	\$200.00
Secretary's clerk	500.00
Stationery, postage and incidentals	150.00
Total	\$850.00
Colorado Medicine	
Two dollars (\$2.00) per member	
Editor's salary	\$300.00
Editor's clerk	600.00
Stationery, postage and incidentals	100.00
Total	\$
Library	\$150.00

Respectfully submitted,
E. E. EVANS,
L. LITTLE,
J. G. RYAN, Chairman.

Secretary Stephenson: "Another matter of Unfinished Business: It was recommended in regard to the periodic health examination programs, that the House of Delegates appoint a committee—I suppose it meant that the committee should be nominated by the House, but perhaps the House of Delegates might leave it to the President to appoint such a committee, a committee of three, to study out a plan for county societies to follow."

L. M. Van Meter: "I make a motion that the President be given authority to designate a committee."

The motion being regularly seconded, and put to a vote, was carried.

Harry A. Smith: "Mr. Chairman, there is a little matter that has been overlooked at this time. Under a report that has been adopted, the incoming Treasurer must provide a bond, and of course the premium must be paid on that bond. There is no provision made for that, and under the head of Unfinished Business I move that the Secretary and Treasurer be authorized to secure such bond and that the Society pay the premium thereon."

The motion being regularly seconded, and put to a vote, was carried.

O. S. Fowler: "I wish to speak to the House in reference to this proposed amendment affecting the licensure of dentists in this state. It seems to me we should have a definite policy, and make provision for some sort of definite

and concerted action to help in this matter at this time. It is a thing that is worrying the dentists a great deal. We are all willing to do our part individually, but I think we should be willing to make concerted action. I therefore move that we give a few minutes of general discussion toward this end."

After extended discussion as to the best plan for offering aid to the Dental Profession, and as to the amount of financial aid which the Society should contribute, Dr. Fowler formulated a motion, viz:

O. S. Fowler: "I move that an amount of money up to \$1,000 be appropriated for the use of the Committee on Public Policy in the present campaign against the proposed dental amendment, from the Special Fund for the Education of the Public."

The motion being regularly seconded, and put to a vote was carried.

Secretary Stephenson: "The Society has had every courtesy from Colorado Springs, the Press, the City Managers, and especially the committees in charge of affairs down here, the Committee on Scientific Work, the Committee on Local Arrangements; and I want to specifically mention Dr. E. D. Downing and Dr. J. B. Crouch, whose services have been so valuable that I feel the Society should not overlook expressing its gratitude for what they have done."

Dr. Hickey: "I move a vote of thanks be expressed by the Secretary to the Chamber of Commerce, to the Press, and to all others whose assistance has made this meeting so remarkably a success."

The motion being put to a vote, having been regularly seconded, was carried.

The Secretary was further authorized to express the Society's appreciation to the American Medical Association for sending Dr. Fishbein to the meeting, to thank the Texas State Medical Society for sending a fraternal delegate to our meeting, and especially to thank the President and Secretary of the Wyoming State Medical Society for their presence.

President Curfman: "That closes the business of this Session, and I wish at this time to express my deep appreciation to all the members of the House of Delegates for their promptness, for their full attendance, and their general spirit of cooperation."

There being no further business before the House, the meeting adjourned.

F. B. STEPHENSON, Secretary.

PROCEEDINGS OF THE SCIENTIFIC MEETINGS*

September 21—First Day

Morning Meeting

The meeting was called to order at 9 o'clock a. m. by the President, George A. Boyd, M.D.

President Boyd: "My opportunity to serve you has about expired. It is too late now; if I have not served you, I never will. I want for a moment, at any rate, to tell you something of the good time I have had. I do not know how hard it has been on you, but I do know that I have had one of the greatest times of my life; I have had more fellowships, more co-operation, more real, friendly, kindly, and healthful help than I ever knew a man could have; and I

*Papers and discussions which were a part of the proceedings of this session will appear in successive issues of Colorado Medicine.

just wish to mention the fact of the new work that we have attempted to introduce into the Colorado State Medical Society. I hope that it has helped, sufficiently helped, to maintain itself, and that through it we will make a much more concerted effort, and develop a more intense co-operative interest in all classes and phases of medical practice.

I first want to mention the fact of the co-operation of my Scientific Program Committee. I feel sure that without them I would have been nothing. Dr. Webb, Dr. Downing, and Dr. Brown were the sources of my inspiration and my help, and to them you owe a great deal. To Dr. Downing, I think the Colorado State Medical Society owes as much as to any other man, certainly in the last two years. Without his help we could not have had our meeting. I wish to thank them all, and I wish to thank you.

For our incoming officer, I want to say that I have had the privilege of working and playing with him. He is full of industry and purpose, and he is a good sport. I hope that you will find him, as I have found him, one of the best friends, one of the best advisers, one of the most careful and courageous planners for the good of medicine that I have known in the State of Colorado.

I now take great pleasure in turning over the responsibility of the Colorado State Medical Society to Dr. Curfman.

President Curfman: Members of the Colorado State Medical Society: Our retiring President has shown great vision; he is getting along in years, but I assure you he is youthful in purpose, and I think our Society owes him much for inciting the scientific spirit, and for arousing co-operation in constituent societies; and I will ask all of you this year a continuation of that spirit of co-operation.

The program as planned was to open this morning with an address by Dr. C. W. W. Poynter, of Omaha, Nebraska. Unfortunately, Dr. Poynter has been detained because of the flood conditions East. He will not arrive until noon. Consequently, our Scientific Program will open this morning with the second number, "The Role Played by Epithelium in Infections of the Conjunctiva and Cornea. (A Possible Explanation of the Vagaries of Inflammations in Other Mucous Membranes)," by Dr. William C. Finnoff, M.D., Denver.

The paper was read by Dr. Finnoff, and discussed by E. R. Neep, William Senger, George A. Boyd, and by Dr. Finnoff in closing.

The next paper was by T. D. Cunningham, Denver, on "Medical Aspects of Goitre."

This paper was discussed by M. O. Shivers, C. N. Meader, Arnold Minnig, F. P. Gengenbach, N. B. Newcomer, and by Dr. Cunningham in closing.

The next paper was read by Harry Gauss, on "Obesity—Its Causes, Complications, Treatment."

The paper was discussed by Arnold Minnig, R. W. Arndt, William Senger, F. P. Gengenbach, and by Dr. Gauss in closing.

Dr. C. W. W. Poynter, of Omaha, then addressed the Society on the subject, "The Lymphatic System as a Defense Mechanism."

President Curfman: I feel that we are greatly indebted to Dr. Poynter for his masterly paper, and I believe it would be worth while to open the subject for general discussion.

Dr. G. A. Boyd then described some of the work of Dr. Poynter as witnessed by him at Omaha.

Afternoon Meeting

The meeting was called to order at 2 o'clock p. m. by Vice President Delehanty.

The Presidential Address was then delivered by Dr. George A. Curfman. (See October issue of Colorado Medicine.)

The next paper was read by C. F. Kemper, Denver, on "The Modern Treatment of Diabetes."

The paper was discussed by Carl Gydesen, F. P. Gengenbach, J. C. Savage, O. M. Gilbert, and by Dr. Kemper in closing.

President Curfman then introduced a representative of the Colorado State Dental Association who briefly addressed the meeting on the proposed amendment to the Compiled Laws of Colorado, 1921, "relating to the practice of dentistry, and to permit dentists duly licensed in other states to practice dentistry in Colorado without taking an examination before the Board of Dental Examiners of this State." (See action of House of Delegates on this question, p. —).

The next papers entitled "Chronic Nasal Sinusitis—Its Effect Upon General Infections," by L. B. Lockard, and A. J. Argall, Denver, and "Manifestations of Para-Nasal Sinusitis," by James H. Leyda, Denver, were read.

The papers were discussed jointly by F. L. Dennis, R. H. Finney, T. E. Carmody, S. J. Chapman, J. J. Pattee, Robert Levy, T. E. Beyer, and by Drs. Argall and Leyda in closing.

The next paper, "Diseases of Animals Communicable to Man," by E. R. Mugrage, M.D., Denver, was read.

The paper was discussed by T. R. Knowles, O. M. Gilbert, and by Dr. Mugrage in closing.

September 22—Second Day

Morning Meeting

The meeting was called to order at 9 o'clock a. m., by President Curfman.

President Curfman: "Members of the Colorado State Medical Society: I would like to introduce at this time Dr. V. J. Keating, President of the Wyoming State Medical Society; also Dr. Earl Whedon, Secretary of the Wyoming State Medical Society."

Dr. Keating: "Members of the Colorado State Society: I feel rather humble in appearing before this splendid array of talent, just coming in from the sagebrush of Wyoming; but it is a pleasure to be here with you, and we hope that our presence will help to stimulate your presence at our Society meeting next year at Cheyenne, Wyoming. We have had some excellent programs in Wyoming, with the assistance of the State Society of Colorado, and hope that we will be able to have a better meeting next year."

"Colorado and Wyoming have a great many things in common; we have a certain portion of your Journal, so that though we are separate societies, we are really one society, operating the one Journal. We hope that next year a great many of the Colorado men will come to Cheyenne to our meeting."

"I thank you."

Dr. Whedon: "Members of the Colorado State Medical Society: The Secretary is not supposed to be a talking machine here. He is like your Secretary over here, who simply has to take the brunt of the work of getting things together and trying to carry them out. It does seem to me, as I look back to my boyhood days of forty years ago, when I peddled newspapers on the street, that there is a chance for all of us to improve in our work. We have, as Dr. Keating has very happily put it, sagebrush men up there, and we have not the facilities of the large hospitals that you have here, and yet I believe that the rank and

file of the doctors in the State of Wyoming compare favorably with the rank and file of the Rocky Mountain Region. There is one thing, however, that I want to bring to your attention: We have just had notice in Wyoming within the last few days, on the part of the Fort Wayne Medical Defense Association that they are not renewing our insurance in the State. Unfortunately, we will not have a meeting of the House of Delegates until next year. I think it should be the policy of your House of Delegates to take that question up. If they are going to cut us out because they have had one unfavorable decision, and it is only one in the last eight or nine years—the Dr. Pfeiffer case was decided against Dr. Pfeiffer, and the \$10,000 damage suit was sustained by our Supreme Court—if they are to do that, I think it should be the policy of Colorado, Utah and Wyoming to drop this insurance and join together in a group form of insurance! and I would suggest that your House of Delegates take the matter up.”

President Curfman: I am going to seize upon this opportunity of presenting to you the editor of the Journal of the American Medical Association, who was introduced to the public last evening, and was introduced to the House of Delegates this morning. I take great pleasure in introducing to you again, Dr. Morris Fishbein.

Doctor Fishbein then addressed the Society extemporaneously upon the subject of “Cancer Cures”, and the work of the American Medical Association in ferreting out and exposing cancer cure frauds.

President Curfman: I am pleased to introduce at this time, Dr. Dean Lewis, full time Professor of Surgery at Johns Hopkins University School of Medicine, who will address you on “Bone Lesions—Their Diagnosis and Treatment.”

The paper was discussed by E. R. Mugrage.

The next paper, “Enteroptosis,” was read by F. C. Buchtel.

The paper was discussed by Leonard Freeman, A. B. Small, of Dallas, Texas, T. Leon Howard, G. Heusinkveld, O. S. Fowler, W. S. Craghead, W. H. Halley, and by Dr. Buchtel in closing.

The next paper was read by J. P. McDonough, M.D., Gunnison, on the subject of “History Taking and Some of Its Phases.”

The paper was discussed by O. M. Gilbert, F. C. Buchtel, and by Dr. McDonough in closing.

The meeting was then addressed by Rev. Joseph F. Higgins, Pueblo, representing the Colorado Hospital Association, on the subject of “Why Advertise Charity?”

Afternoon Meeting

The meeting was called to order at 2 o'clock p. m.

The first paper on the subject of “The Appendix in Childhood” was read by B. B. Blotz, M.D., Rocky Ford.

The paper was discussed by W. W. Grant, F. P. Gengenbach, J. N. Hall, C. H. Graves, Emanuel Friedman, Geo. B. Packard, Jr., F. C. Buchtel, E. H. Munro, William Senger, and by Dr. Blotz in closing.

The next paper on the program, “Diseases of the Umbilicus”, was read by Geo. E. Rice, M.D., Pueblo.

The paper was discussed by John W. Amesse, there being no closing discussion.

The next paper on the subject of “Hematuria” was read by T. Leon Howard, M.D., Denver, being discussed by W. M. Spitzer, Henry Sewall, F. C.

Buchtel, F. P. Gengenbach, and by Dr. Howard in closing.

President Curfman: The Chair wishes to apologize at this time to Dr. R. S. Johnston, of La Junta, for his failure to call upon him for the opening discussion of Dr. Rice's paper on “Diseases of the Umbilicus.”

The next paper on the subject of “Some Interesting Urological Cases” was read by Capt. H. V. Raycroft, M.D., of the Fitzsimons General Hospital, Denver.

The paper was discussed by T. Leon Howard, W. M. Spitzer, and by Capt. Raycroft in closing.

The last paper of the afternoon meeting was read by Edgar A. Bocock, on the subject of “Health Conditions in the Republic of Panama.”

The paper was discussed by R. W. Corwin and Leonard Freeman.

September 23—Third Day

Morning Meeting

President Curfman: As presiding officer, it gives me a peculiar sense of pleasure at this time to introduce the next speaker, the daughter or our beloved retiring President, Dr. Boyd—Dr. Edith Boyd, of Minneapolis, Minnesota, who will read a paper on the subject of “The Thymus Gland: Its Growth, Involution, and Pathologic Conditions.”

The paper was read and was discussed by W. W. Wasson, F. P. Gengenbach, F. B. Stephenson, and by Dr. Edith Boyd in closing.

President Curfman: At this time, members of the Colorado State Medical Society, I would like to introduce to you the official Fraternal Delegate from the State of Texas, Dr. A. B. Small, of Dallas.

Dr. Small then addressed the Society extemporaneously.

The next paper on the subject of “Surgery of Pulmonary Tuberculosis” was read by C. F. Hegner, Denver.

The paper was discussed by C. O. Giese, Major Wm. H. Thearle, and by Dr. Hegner in closing.

The next paper was read by B. K. Hays, M.D., Fort Lyon, Colorado, on the subject of “Diagnostic Problems Peculiar to the Veterans' Bureau Hospitals.”

The discussion of this paper was deferred until the afternoon session.

President Curfman: While we are waiting, I would like to introduce our distinguished guest, Dr. H. G. Brainerd, ex-President of the California State Medical Society, of Los Angeles.

Dr. Brainerd: “I have been very much interested in the meetings of the Colorado State Medical Society. I have been to four out of the last five, and I have been especially interested in the exhibits. It is only a few years back since we have had an exhibit such as is now in the hall over here, at the American Medical Association. This is a most instructive one, and I think you are to be congratulated. I thank you.”

The paper read by Dr. Hays on the subject of “Diagnostic Problems Peculiar to the Veterans' Bureau Hospitals” was then discussed by C. E. Harris, there being no closing discussion.

The Secretary then reviewed the proceedings of the House of Delegates. (See full proceedings of House of Delegates, this issue.—Sec.)

Afternoon Meeting

President Curfman: The first order of business is the report of the Committee on Necrology.

Secretary Stephenson: The report of the Committee on Necrology each year is in the hands of a committee appointed especially for the pur-

pose. The Chairman of the Committee, Dr. Honkel, of Rifle, has removed to California. Another member of the Committee, Dr. Palmer, of Castle Rock, is quite seriously ill. The duty of writing the report fell to the other member of the Committee, Dr. Ben Beshoar, who was unable to be here and present the report himself, but has kindly written it and asked me to read it for him.

The report was then read by the Secretary and is as follows:

Report of Committee on Necrology

The one sad duty we are called upon each year to perform is to pay tribute to our departed fellows.

With grief for our loss in our hearts, we can not but think with consolation of the rest they have earned after arduous duties well done.

To those who are wont to consider death of friends a loss, it must seem like an irony of fate that those who have spent the best years of their lives fighting off the Grim Reaper for others, must themselves answer the call, but to that Providence that beckons, and from whose decision there is no earthly appeal, even men of science must bow.

It is in sorrow, however, that we are forced to report the deaths of the following, since our last meeting:

H. J. Rossiter, Golden, Colorado. May 7, 1926. Carcinoma. Born 1882, Ohio. Graduated Missouri Eclectic Medical University, 1918. Licensed in Colorado 1919. Member Arapahoe County Medical Society.

Olney G. Place, Boulder, Colorado. March 18, 1926. Cerebral thrombosis. Born 1860, New York. Graduated University of Michigan, 1885. Licensed in Colorado 1893. Member Medical Society City and County of Denver.

Morris Printz, Denver, Colorado. May 2, 1926. Acute lymphatic leukemia. Born 1894, Denver, Colorado. Graduated University of Colorado, 1918. Licensed in Colorado 1918. Member Medical Society of the City and County of Denver.

George Ernest Richmond, Denver, Colorado. October 23, 1925. Cardiac disease. Born 1880, West Virginia. Graduated Louisville Medical College 1906. Member Medical Society City and County of Denver.

Edgar Hadley, Montrose, Colorado. July 28, 1926. Fractured skull. Born 1866, Indiana. Graduated Indiana Medical College, 1900. Licensed 1903. Member Montrose County Medical Society.

Franklin E. Wallace, Pueblo, Colorado. May 24, 1926. Angina pectoris. Born 1867, Ohio. Graduated Rush Medical College, 1907. Licensed in Colorado 1907. Member Pueblo County Medical Society.

J. H. Kellogg, Sterling, Colorado. April 17, 1926. Accidental poisoning. Born 1872, Pennsylvania. Graduated University of Colorado, 1906. Licensed in Colorado 1906. Member Northeast Colorado Medical Society.

C. E. Elliott, Victor, Colorado. April 18, 1926. Lobar pneumonia. Born 1866, Canada. Graduated University of Bishop College Faculty of Medicine 1889. Licensed in Colorado 1903. Member Teller County Medical Society.

Thomas Hayden Hawkins, Plainfield, N. J. July 20, 1926. Cerebral hemorrhage. Born 1848, Kentucky. Graduated Bellevue Hospital Medical College, New York, 1873. Licensed in Colorado 1880. Member Medical Society of City and County of Denver. Honorary Member Colorado State

Medical Society. Emeritus Professor of Surgery University of Colorado Medical School.

Charles F. Andrew, Longmont. August 14, 1926. Carcinoma of stomach. Born 1871, Illinois. Graduated Missouri Medical College, 1895. Licensed in Colorado 1895. Member Boulder County Medical Society.

E. Stuver, Fort Collins, Colorado. September 12, 1925. Angina pectoris. Born Pennsylvania, 1858. Graduated National Normal and Medical College, 1895. Licensed in Colorado 1895. Member Larimer County Medical Society.

H. M. Collison, Sterling, Colorado. February 26, 1926. Born 1874. Ontario. Graduated McGill University, 1901. Licensed in Colorado 1923. Member Northeast Colorado Medical Society.

BEN BESHOAR,
For the Committee.

The last number of the forenoon program, "Treatment of Tuberculosis with Artificial Light," by Dr. F. A. Forney, Woodman, Colorado, was then read.

The paper was discussed by R. C. Cook, Fort Lyon, Colorado, I. D. Bronfin, O. M. Gilbert, and by Dr. Forney in closing.

President Curfman: "At this time, gentlemen, according to established custom, it becomes my pleasant duty to introduce to you the President-elect of the Colorado State Medical Society; but before doing so, I feel that some words of appreciation on my part are necessary.

"I wish to express to each individual member of the Society who has been present here, my appreciation for their co-operation in this program, for their constant interest, their free discussion of the papers, and for the general quiet maintained during all the sessions. I wish to thank all the speakers, and not one paper thus far in the meeting has been read by title. I also wish to thank our Program Committee for the excellent program they have put on this year, and for their loyal support. You probably have seen in this program, a continuity. It was their purpose, and Dr. Boyd's and mine, to unify, if possible, and include on the program all our institutions of medicine, besides the constituent societies, and I believe this session has elicited the interest of all. Again, I wish to thank the Program Committee for their loyal co-operation. I wish to thank the constituent societies for the wonderful exhibits on the program of medicine. This sort of co-operation, you are aware, was originated by Dr. Boyd. The Program Committee entered into the spirit of this thing, as best they could, as well as our Secretary. It has been very gratifying to know that some constituent societies which have been dormant are now active, particularly the Morgan County Society that has such a wonderful exhibit on "Typhoid Fever." I might say in regard to the exhibits here, that Dr. Fishbein, our American Medical Association representative, stated that this was the only state in the Union that had such an exhibit, and that it is worthy of much praise. I cannot pass by without expressing my appreciation to Dr. Edith Boyd for her wonderful address this morning. It is the fruition of the idealism of your retiring President, and I feel that whatever success this session may have attained thus far, is due to that idealism of Dr. Boyd's; and I bespeak for the incoming officer the same spirit of co-operation."

President-Elect Sedwick: Mr. President and members of the Colorado State Medical Society: To have been elected President of this Society is very, very flattering, and I appreciate the honor more than I can tell. If I can make the success

that has attended this, and the previous meetings, which I hardly expect to do, I will be very glad, and very thankful. I do want to say that if these gentlemen will give me their hearty co-operation, which I ask for, I believe the traditions of our Society will be upheld, and I assure you I will do all that is within my power to make our next meeting equal to the one that has passed, insofar as is possible."

The next paper, "A Comparison of Rural and Urban Children in Colorado," was read by Roy P. Forbes, M.D., Denver.

The paper was discussed by A. J. Wenk, W. J. McMenamy, D.D.S., and by Dr. Forbes in closing.

The next paper on the program, "Bleeding During Pregnancy," was read by G. Heuskinveld, there being no discussion.

The next paper, by C. W. Maynard, on "The Kahn Precipitation Test, with Report of 500 Cases," was read and was discussed by E. R. Murgage, there being no closing discussion.

The last paper on the Scientific Program, "Treatment of General Paresis by Inoculation with Tertian Malaria. A Summary of First Year's Experience," was read by Franklin G. Ebaugh.

The paper was discussed by H. A. LaMoure, C. W. Maynard, E. R. Murgage, G. A. Boyd, Dr. Johnson (State Hospital), and by Dr. Ebaugh in closing.

President Curfman: "I now have the pleasure, as your presiding officer, to declare the Fifty-Sixth Annual Session of the Colorado State Medical Society, officially closed."

(Report of the Committee on Public Policy on business referred to it at this session, and temporarily mislaid, will appear in the January issue.)

F. B. STEPHENSON,
Secretary.

WOMEN'S AUXILIARY

The purpose of the Women's Auxiliary to the Colorado State Medical Society as stated in the By-Laws is to promote good feeling and acquaintance among the wives of the doctors in the state and render any assistance to the society that may be requested.

The first purpose has been carried out more and more since the beginning of the organization, and this year the meeting at Colorado Springs showed a very fine feeling and a spirit of enthusiasm for the future.

The second purpose gives us an opportunity for service, and we are called upon this year to assist in the wider distribution of Hygeia. Every doctor's wife should know Hygeia; that it is a valuable little publication in the home and school, and that it is an organ of the American Medical Association, its purpose being to put correct information about health, hygiene and sanitation into the homes of the nation. It is our aim to place Hygeia in many schools and libraries of the state, but before doing this there is a need of county organization. With this need as an incentive an effort will be made in Colorado to organize twenty-four auxiliaries corresponding to the twenty-four districts in the state which have medical societies. A number of states have carried out such a program with excellent results. Besides the help that could be rendered by such county auxiliaries to the state auxiliary and thus to the national, the meetings could be made attractive as social events and might be, in that way, of distinct value in accomplishing the promotion of good feeling as set forth in the By-Laws of both state and national societies.

There are more than a thousand members of the Colorado State Medical Society. There should be at least five hundred members to its auxiliary. Is it too much to say we will have three hundred members by the next meeting. At present there are ninety paid members. A list will be published at an early date. The wife of every doctor who is a member of his county society is eligible and can become a member by sending \$1.00, dues for the year, to Mrs. Crum Epler, Pueblo, Colo. If you have been a member and have not paid your dues for this year, send them in at once.

Speeding to Save

Just how many lives are saved by the arrival of a physician within a margin of a few minutes is indeed problematical. It is quite true that there are very few indeed. Yet it is not an uncommon sight to see a physician rushing frantically, in violation of the speed laws, to a patient who would have suffered none the more had the physician proceeded in a less spectacular and more orderly manner. Of course, those of the populace who happen to see him are filled with awe and wonderment and the family is deeply impressed. But the question may be asked, is it really justifiable? The difference in time in covering the distance to an average call while running at a safe and legal rate of speed is so small that the good that one may accomplish in that time is negligible. As has been said of the joy rider, "Those who run at break-neck speed have nothing to do when they get there."

But even more culpable is the practice of ambulances of speeding. In the larger cities it is of daily occurrence to see an ambulance racing through the streets with bell clanging or siren screaming and for no purpose at all. The ambulances of public institutions are the guiltiest of all. These conveyances are, as a rule, accompanied by an interne, and he should be so equipped as to be able to render first aid on the scene and thus reduce the need of speeding to the lowest possible minimum. It is in striking contrast that one observes the private ambulances moving gently along. The reasons are obvious.

The slogan may be this: Speed when you have to, but be sure you have to.—Journal of the Tennessee State Medical Association.

The Mystic Sign: When a woman motorist holds out her hand, then you can be certain that she is either going to turn to the right or to the left or stop.

Dear Editor: "Which is the most important, a man's wife or his trousers?"

Answer: "Well, a man is privileged to be on the street without his wife."

Patient: "Do you think I'll get well, doctor?"

Doctor: "You have every chance. Nine out of ten cases of this kind die. You're my tenth case. I've had nine others, and they all died."

Whaffur?

Sir: At the lake yesterday I glimpsed a flowery-eyed little thing in a one-piece, who struck me as being the girl of my dreams. Never miss a chance is my rule, so I ambled up to her and said: "Can you swim?" "No," she came back, snappily, "but I can wade like hell.—Exchange.

Every year, more men and women come out of prison in the United States than graduate from all our colleges and universities.

List of Members of the Colorado State Medical Society

December 1st, 1926

HONORARY MEMBERS

Richard C. Cabot, Boston, Mass.	Francis Ramaley, Boulder, Colo.
T. H. Hawkins, Plainfield, N. J.	John Ridlow, Chicago, Ill.
Livingston Farrand, Ithaca, N. Y.	William Robert Tyndale, Salt Lake City, Utah.
Lewis Linn McArthur, Chicago, Ill.	Victor C. Vaughan, Ann Arbor, Mich.
Chas. H. Mayo, Rochester, Minn.	L. B. Wilson, Rochester, Minn.
C. K. Mills, Philadelphia, Pa.	

ASSOCIATE MEMBERS

(Honorary Members of Constituent Societies)

Name	Address	Constituent Society
Major Earl H. Brums	Aurora, Colo.	Denver
David I. Christopher	Colorado Springs, Colo.	El Paso
Abraham L. Fugard	Los Angeles, Calif.	Pueblo
Lt. Col. Paul C. Hutton	Aurora, Colo.	Denver
Alex. T. King	Milwaukee, Wis.	Pueblo
Hugh F. Lorimer	Ordway, Colo.	Pueblo
Luke MacLean	Pueblo, Colo.	Pueblo
Wm. H. Rader	Collbran, Colo.	Mesa
Cyrus F. Taylor	Pueblo, Colo.	Pueblo

ACTIVE MEMBERS

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Abrahams, H. E.	Trinidad	Las Animas	Bagot, W. S.	Denver	Denver
Adams, O. F.	Trinidad	Las Animas	Bailey, B. M.	Mt. Harris	Northwestern
Adams, W. A.	Denver	Denver	Baird, Wm. J.	Boulder	Boulder
Adkinson, R. C.	Florence	Fremont	Baker, Andrew J.	Florence	Fremont
Albi, Michael	Trinidad	Las Animas	Baker, Fred R.	Colorado Springs	El Paso
Albi, Rudolph	Denver	Denver	Baker, Madeleine M.	Denver	Denver
Alcorn, F. A.	Haxtum	Northeast	Baker, R. C.	Denver	Denver
Alford, Jos. Savage	Crested Butte	Denver	Baker, W. T. H.	Pueblo	Pueblo
Aldredge, H. H.	Englewood	Arapahoe	Bancroft, G. W.	Colorado Springs	El Paso
Allen, J. H.	Denver	Denver	Bane, Wm. C.	Denver	Denver
Allen, K. D. A.	Denver	Denver	Bane, W. M.	Denver	Denver
Allen, L. R.	Colorado Springs	El Paso	Barber, W. W.	Denver	Denver
Allen, Robert S.	Denver	Denver	Barnard, Hamilton I	Denver	Denver
Allen, W. P.	Greeley	Weld	Barney, J. M.	Denver	Denver
Ames, Matthew H.	Denver	Denver	Barney, N. E.	Sterling	Northeast
Amesse, John W.	Denver	Denver	Bartz, L. E.	Windsor	Weld
Anderson, A.	Ault	Weld	Bassow, Solomon H.	Denver	Denver
Anderson, C. W.	Denver	Denver	Bast, Lee	Delta	Delta
Anderson, Geo. M.	Cheyenne, Wyo.	Denver	Bates, Mary E.	Denver	Denver
Anderson, T.	Denver	Denver	Baum, Felix	Denver	Denver
*Andrews, C. F.	Longmont	Boulder	Baum, Harry L.	Denver	Denver
Andrew, John	Longmont	Boulder	Baum, William Wells	Denver	Denver
Andrews, Geo. D.	Walsenburg	Huerfano	Beachley, John V.	Stratton	Kit Carson
Andrus, Lester S.	Denver	Denver	Beacom, Dean Nolan	Denver	Denver
Apperson, Ed L.	Denver	Denver	Beaghtler, Amos L.	Denver	Denver
Argall, Albert J.	Denver	Denver	Beall, Kate W.	Denver	Denver
Arndt, Rudolph W.	Denver	Denver	Beall, Walter C.	Denver	Denver
Arneill, James R.	Denver	Denver	Beatty, J. T.	Denver	Denver
Arnold, C. R.	Colorado Springs	El Paso	Beck, L. H.	Manitou	El Paso
Ashbaugh, G. A.	Rocky Ford	Otero	Beck, N. C.	Denver	Denver
Ashbaugh, R. A.	Canon City	Las Animas	Becker, Henry J.	Sterling	Northeast
Ashley, G. H.	Denver	Denver	Bee, Archie	Canon City	Fremont
Atcheson, Geo.	Denver	Denver	Beebe, Nathan L.	Boulder	Boulder
Atkinson, T. E.	Greeley	Weld	Beers, Ida V.	Denver	Denver
Attwood, A. D.	Denver	Denver	Beggs, Wm. N.	Denver	Denver
Aust, T. H.	Cedar Edge	Delta	Bell, Claude Conley	Denver	Denver
Averill, H. W.	Evans	Weld	Belrose, N. W.	Long Beach, Calif.	Weld
Baca, Jose F.	Walsenburg	Huerfano	Bendove, R. A.	Denver	Denver
Bacon, H. E.	Fort Collins	Larimer	Bennett, E. C.	Boulder	Boulder

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Bergen, Frank L...	Burlington	Kit Carson	Caldwell, C. N.....	Pueblo	Pueblo
Berlin, Wm. C. K....	Denver	Denver	Calkins, Royal W....	Cortez	San Juan
Beshoar, Ben.....	Trinidad	Las Animas	Calonge, G. E.....	La Junta	Otero
Betts, F. A.....	Wellington	Larimer	Campbell, J.....	Boulder	Boulder
Beyer, T. E.....	Denver	Denver	Campbell, W. A.....	Colorado Springs	El Paso
Bigelow, May T....	Denver	Denver	Campbell, W. A., Jr.	Colorado Springs	El Paso
Bingham, W. J....	Denver	Denver	Canby, H. S.....	Denver	Denver
Birkenmayer, W. C..	Denver	Denver	Carey, J. D.....	Fort Collins	Larimer
Bishop, Frank D....	Denver	Denver	Carmichael, Paul W.	Sopris	Las Animas
Bixler, C. W.....	Erie	Boulder	Carmody, T. E.....	Denver	Denver
Black, H. A.....	Pueblo	Pueblo	Carpenter, F. H....	Denver	Denver
Black, Melville....	Denver	Denver	Carson, L. R.....	Glenwood Spgs.	Garfield
Blackman, A. A....	Colorado Springs	El Paso	Carson, P. C.....	Englewood	Arapahoe
Blackmer, F. J....	Steamboat Sp.	Northwestern	Cary, F. H.....	Denver	Denver
Blackwood, H. A...	Weldona	Morgan	Cary, G. C.....	Grand Junction	Mesa
Blanchard, Winthrop	Denver	Denver	Casburn, F. E.....	Holly	Prowers
Blank, Henry.....	Denver	Denver	Case, A. G.....	Denver	Denver
Blickensderfer, G. M.	Denver	Denver	Cassell, O. M.....	Burlington	Kit Carson
Block, Leon.....	Denver	Denver	Catron, H. B.....	Englewood	Arapahoe
Blosser, J. R.....	Denver	Denver	Cattermole, Geo. H.	Boulder	Boulder
Blotz, B. B.....	Rocky Ford	Otero	Catterson, A. D....	Denver	Denver
Blotz, B. F.....	Rocky Ford	Otero	Cawley, B. M.....	Trinidad	Las Animas
Blumel, C. S.....	Denver	Denver	Cecchini, A. S.....	Denver	Denver
Blumberg, A. M....	Denver	Denver	Chamberlain, R. S.	Denver	Denver
Bocock, Edgar Allan	Denver	Denver	Chambers, Karl....	Denver	Denver
Bolton, L. C.....	Cedar Edge	Delta	Champlin, H. H....	Denver	Denver
Bonesteel, A. E....	Denver	Denver	Chandler, G. B....	Calhan	El Paso
Bonney, S. G.....	Denver	Denver	Chapman, S. J....	Colorado Springs	El Paso
Bordner, Alta E....	Pueblo	Pueblo	Chapman, W. S....	Walsenburg	Huerfano
Boring, Harold B..	Denver	Denver	Charles, Robert L..	Denver	Denver
Bortree, L. W.....	Colorado Springs	El Paso	Chase, A. M.....	Denver	Denver
Bouslog, J. S.....	Denver	Denver	Chase, John S.....	Denver	Denver
Boyd, E. T.....	Denver	Denver	Cheley, G. E.....	Denver	Denver
Boyd, Geo. A.....	Colorado Springs	El Paso	Chesmore, H. P....	Delagua	El Paso
Braden, J. M.....	Lafayette	Boulder	Childs, S B.....	Denver	Denver
Brady, E. J.....	Colorado Springs	El Paso	Chisholm, A. J....	Denver	Denver
Bramley, J. R.....	Denver	Denver	Clagett, O. F.....	Rifle	Garfield
Brandenburg, H. P.	Denver	Denver	Clark, Ira J.....	Denver	Denver
Brandon, E. Agnes..	Denver	Denver	Clarke, Edwin A...	Akron	Morgan
Breck, Merrick R..	La Junta	Otero	Clarke, L. G.....	Glenwood	Garfield
Brethouwer, C. G..	Montrose	Montrose	Claybaugh, W. W...	Palisade	Mesa
Brier, A. J.....	Denver	Denver	Cleland, W. S.....	Delta	Delta
Brinton, Wm. Thos.	Denver	Denver	Cleveland, A. L....	Englewood	Arapahoe
Brobeck, Von Haller	Colorado Springs	El Paso	Clow, J. B.....	Denver	Denver
Broeker, C. G.....	Denver	Denver	Coakley, Harry Elmer	Denver	Denver
Broman, O. F.....	Greeley	Weld	Cochems, F. N.....	Salida	Lake
Bronfin, Isadore D.	Sanatorium	Denver	Cohen, H. M.....	Denver	Denver
Brown, E. H.....	Pueblo	Pueblo	Colby, H. E.....	Stonington	Prowers
Brown, H. C.....	Denver	Denver	Coleman, O. E.....	Denver	Denver
Brown, J. H.....	Colorado Springs	El Paso	Collier, W. B.....	Littleton	Arapahoe
Brown, L. G.....	Colorado Springs	El Paso	Collins, E. W.....	Denver	Denver
Brown, M. D.....	Denver	Denver	*Collison, H. M....	Sterling	Northeast
Brown, Thad C....	Fort Collins	Larimer	Conant, E. F.....	Denver	Denver
Brown, Wm. S.....	Tabernash	Denver	Condit, Edwin G...	Silverton	San Juan
Brownell, W. F....	Fort Collins	Larimer	Condon, C. E.....	Breckenridge	Lake
Bryson, Margaret E.	Greeley	Weld	Connor, P. J.....	Denver	Denver
Buchtel, F. C.....	Denver	Denver	Conway, L. A.....	Colorado Springs	El Paso
Buck, W. E.....	Pueblo	Pueblo	Conyers, Chester A.	Denver	Denver
Bull, H. R.....	Grand Junction	Mesa	Cook, D. M.....	Craig	Northwestern
Bundsen, C. A.....	Denver	Denver	Cook, L. C.....	Golden	Denver
Burdick, W. T....	Denver	Denver	Cook, Robert C....	Ft. Lyons	Denver
Burgin, Chas. H...	Delta	Delta	Cooper, C. E.....	Denver	Denver
Burgin, Jim.....	Delta	Delta	Cooper, Henry Lewis	Denver	Denver
Burket, R. S.....	Brook Forest	Denver	Cooper, Henry S...	Denver	Denver
Burkhard, Ed. D...	Pueblo	Pueblo	Cooper, Horace S...	Denver	Denver
Burlingame, Robt. M.	Denver	Denver	Coover, D. H.....	Denver	Denver
Burnett, A. L.....	Durango	San Juan	Copeland, W. C....	Hotchkiss	Delta
Burnett, C. T.....	Denver	Denver	Corbin, Emmett A..	Eaton	Weld
Burnett, N. M.....	Lamar	Prowers	Corlett, T. G.....	Colorado Springs	El Paso
Burns, T. M.....	Denver	Denver	Cornell, H. M.....	Dulce, N. M.....	San Juan
Bush, C. E.....	Denver	Denver	Corper, H. J.....	Denver	Denver
Bush, J. H.....	Boulder	Boulder	Corwin, R. W.....	Pueblo	Pueblo
Bushell, Edward...	Denver	Denver	Costigan, Daniel D.	Trinidad	Las Animas
Cable, George Lewis	Denver	Denver	Craghead, W. S....	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Craig, A. C.....	Denver	Denver	Ebaugh, F. G.....	Denver	Denver
Craig, James W....	Loveland	Larimer	Edson, C. E.....	Denver	Denver
Craig, Wm. B.....	Denver	Denver	Edwards, G. M.....	Denver	Denver
Craighead, J. W....	Pueblo	Pueblo	Egam, I. S.....	Rifle	Garfield
Cram, V. E.....	Ft. Collins	Larimer	Elder, C. S.....	Denver	Denver
Craney, J. P.....	Denver	Denver	Elliot, H. R.....	Denver	Denver
Creighton, B. B....	Manitou	El Paso	Elliott, C. E.....	Victor	Unattached
Crews, Geo. B.....	Denver	Denver	Elliott, C. H.....	Denver	Denver
Crisp, J. D.....	Denver	Denver	Elliott, J. T.....	Denver	Denver
Crisp, Wm. H.....	Denver	Denver	Ellis, A. G.....	Bangkok, Siam.....	El Paso
Crook, W. W.....	Glenwood Springs...	Garfield	Elrick, Leroy.....	Denver	Denver
Crosby, L. G.....	Denver	Denver	Emery, H. G.....	Denver	Denver
Crouch, J. B.....	Colorado Springs...	El Paso	Engleson, C. J....	Brookings, S. D.....	Denver
Crysler, W. C.....	Littleton	Arapahoe	Enos, Clinton.....	Denver	Denver
Cummings, G. D....	Florence	Fremont	Epler, Crum.....	Pueblo	Pueblo
Cunningham, A. A..	Denver	Denver	Erich, A. F.....	Delta	Delta
Cunningham, T. D..	Denver	Denver	Espey, J. G.....	Trinidad.....	Las Animas
Curfman, G. H.....	Salida	Chaffee	Espey, J. R.....	Trinidad.....	Las Animas
Curtis, H. B.....	Denver	Denver	Esserman, A. L....	Denver	Denver
Danahey, T. J.....	Denver	Denver	Evans, E. E.....	Ft. Morgan	Morgan
Daniel, J. H.....	Sterling	Northeast	Evans, F. J.....	Denver	Denver
Darling, J. C.....	Durango	San Juan	Evans, T. J.....	Colorado Springs....	El Paso
Darrow, C. H.....	Denver	Denver	Ewing, G. F.....	Grand Junction ...	Northeast
Davenport, Robt. G..	Denver	Denver	Eyerly, T. L.....	Denver	Huerfano
Davis, A. C.....	Lamar	Prowers	Faber, Edwin G....	Denver	Denver
Davis, J. B.....	Denver	Denver	Fantz, T. S.....	Denver	Denver
Davis, Joseph W....	Aguilar	Las Animas	Farnsworth, M. A..	Boulder	Boulder
Davis, Jefferson W..	Denver	Denver	Farrington, F. H....	Boulder	Boulder
Davis, T. A.....	Portland	Fremont	Farrington, Paul R..	Boulder	Boulder
Davlin, C. A.....	Alamosa	San Luis Valley	Farthing, C. H.....	Meeker	Garfield
Day, H. S.....	Grand Junction	Mesa	Faust, F. A.....	Colorado Springs....	El Paso
Day, R. J.....	Del Norte....	San Luis Valley	Fenton, W. C.....	Rocky Ford	Otero
Day, W. A.....	Delta	Delta	Fezer, Florence....	Greeley	Weld
Dean, E. F.....	Denver	Denver	Filmer, B. A.....	Denver	Denver
Dean, F. C.....	Denver	Denver	Finney, H. S.....	Denver	Denver
DeBeque, W. A. E....	DeBeque	Denver	Finney, R. H.....	Pueblo	Pueblo
Delchanty, Ed.....	Denver	Denver	Finnoff, Wm. C....	Denver	Denver
Denney, R. H.....	Elbert	Denver	Fischer, V. B.....	Boulder	Boulder
Dennis, F. L.....	Colorado Springs....	El Paso	Fisher, Carl D.....	Denver	Denver
Dennis, W. S.....	Denver	Denver	Fitzgerald, D. L....	Hartman	Prowers
Dewey, E. B.....	Denver	Denver	Flaten, A. P.....	Yuma	Morgan
Dibble, R. B.....	Pueblo	Pueblo	Fleming, Victor P..	Toronto, Canada....	Denver
Dickson, Logan M....	Denver	Denver	Foley, John Wm....	Denver	Denver
Dickson, Robert W..	Denver	Denver	Fonda, J. W.....	Longmont	Boulder
Didrickson, F. G....	Montrose	Montrose	Forbes, R. P.....	Denver	Denver
Dietmeier, H. R....	Longmont	Boulder	Ford, Mary E.....	Denver	Denver
Dodge, Horace C....	Washington	Boulder	Forney, F. A.....	Woodman	El Paso
Dodson, A. E.....	Akron	Morgan	Forster, A. M.....	Colorado Springs....	El Paso
Dooley, W. P.....	Akron	Morgan	Foster, J. M.....	Denver	Denver
Dorset, B. C.....	Denver	Denver	Fowler, Harmon L..	Denver	Denver
Doty, David Albert..	Denver	Denver	Fowler, Ora S.....	Denver	Denver
Douglass, A. L.....	Denver	Denver	Fox, James Shelton..	Denver	Denver
Downing, E. D.....	Woodman	El Paso	Fox, M. R.....	Sterling	Northeast
Drea, Wm. Francis..	Colorado Springs....	El Paso	Frank, Lorenz W....	Denver	Denver
Drinkwater, Ray L..	Denver	Denver	Frankle, B. B.....	Denver	Denver
Driscoll, W. E.....	Willow Creek	Northwest	Fraser, M. Ethel V..	Denver	Denver
Drisdale, W. E.....	Coal Creek	Fremont	Fraser, R. W.....	Denver	Denver
Driver, G. S.....	Ignacio	San Juan	Freeland, H. J.....	Denver	Denver
Drown, L. M.....	Denver	Denver	Freeman, Leonard..	Denver	Denver
Dryer, Ernest.....	Colorado Springs....	El Paso	Freudenberger, H. C.	Colorado Springs....	El Paso
Dumm, B. I.....	Denver	Denver	Freudenthal, A....	Trinidad.....	Las Animas
Dunkle, Frank	Meteteetse, Wyo.	Weld	Friedman, Emanuel.	Denver	Denver
Duncan, Floyd E....	Julesburg	Northeast	Fuller, C. R.....	Salida	Chaffee
Dunham, Jas. I.....	Chama, N. M.....	San Juan	Fuqua, J. W.....	Greeley	Weld
Dunklee, Geo. K....	Denver	Denver	Fuson, Carl C.....	Milliken	Weld
Dunlop, Josephine N.	Pueblo	Pueblo	Gage, W. V.....	Denver	Denver
Dutton, F. G.....	Julesburg	Northeast	Gaines, Joseph R....	Las Animas	Otero
Dworak, Francis E..	Colorado Springs....	El Paso	Gale, M. Jean.....	Denver	Denver
Dwyer, Paul K.....	Alamosa	San Luis	Gallagher, T. J....	Denver	Denver
Dyde, C. B.....	Greeley	Weld	Gardiner, C. F.....	Colorado Springs....	El Paso
Dymenberg, N.....	Minturn	Denver	Garvin, D. Edson...	Golden	Denver
Eakins, C. F.....	Brush	Morgan	Garwood, H. G.....	Denver	Denver
Earley, A. H.....	Denver	Denver	Gasser, W. P.....	Loveland	Larimer
Eastlake, Chesmore.	Denver	Denver	Gauss, Harry.....	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Gelien, Johanna....	Denver	Denver	Hayes, Harold M....	Sedgwick	Northeast
Gengenbach, F. P....	Denver	Denver	Hays, W. E.....	Sterling	Northeast
George, McLeod M....	Denver	Denver	Hazelton, Wm. H....	Denver	Kit Carson
Gibson, J. D.....	Denver	Denver	Hazlett, H. W.....	Paonia	Delta
Giese, C. O.....	Colorado Springs....	El Paso	Heacock, Charles H.	Pueblo	Pueblo
Gilbert, G. B.....	Colorado Springs....	El Paso	Hegner, C. F.....	Denver	Denver
Gilbert, O. M.....	Boulder	Boulder	Heimlick, A. F.....	Grand Junction	Mesa
Gillaspie, Carbon....	Boulder	Boulder	Heller, Frederick M.	Pueblo	Pueblo
Gillett, O. R.....	Colorado Springs....	El Paso	Henderson, H. B....	Denver	Denver
Gilmore, G. B.....	Colorado Springs....	El Paso	Henkel, F. W. E....	Los Angeles, Calif...	Garfield
Gjellum, A. B.....	Del Norte....	San Luis Valley	Hepler, A. H.....	Newcastle	Garfield
Gleason, R. L.....	Fort Collins	Larimer	Hepp, G. Brinton...	Denver	Denver
Goldhammer, Sam'l..	Denver	Denver	Hereford, J. H.....	Colorado Springs....	El Paso
Good, A. H.....	Telluride	Montrose	Herriman, L. L. ...	Alamosa	San Luis Valley
Goodson, H. C.....	Colorado Springs....	El Paso	Hersom, R. G.....	Pueblo	Pueblo
Gorsuch, John C....	Denver	Denver	Heusinkveld, Gerrit.	Denver	Denver
Gothard, J. W.....	Avondale	Pueblo	Heuston, H. H.....	Boulder	Boulder
Gotthelf, I. L.....	Saguache....	San Luis Valley	Hick, L. A.....	Delta	Delta
Graf, Carl H.....	Boulder	Boulder	Hickey, Clinton G...	Denver	Denver
Graham, Chas. A....	Denver	Denver	Hickey, H. L.....	Denver	Denver
Graham, Donald A...	Denver	Denver	Hickman, W. E....	Wiley	Prowers
Graham, E. V.....	Denver	Denver	Higgins, John W....	Denver	Denver
Graham, R. F.....	Greeley	Weld	Hill, E. C.....	Denver	Denver
Grant, W. W.....	Denver	Denver	Hill, Kenneth A....	Denver	Denver
Grantham, O. A....	Littleton	Arapahoe	Hill, Lawrence H....	Colorado Springs....	El Paso
Graves, C. H.....	Canon City	Fremont	Hillkowitz, Philip...	Denver	Denver
Graves, H. C.....	Canon City	Fremont	Hills, W. K.....	Colorado Springs....	El Paso
Gray, Albert B.....	Denver	Denver	Hillyer, W. E.....	Boulder	Boulder
Green, Berryman...	Denver	Denver	Hinshaw, J. D.....	Canon City.....	Fremont
Green, H. A.....	Boulder	Boulder	Hirose, Tadayuki...	Denver	Denver
Greene, Lawrence W.	Denver	Denver	Holden, Eugene....	Eaton	Weld
Greig, Wm.	Denver	Northeast	Holden, G. Walter..	Denver	Denver
Greig, Wm. M.....	Denver	Denver	Holland, A. C.....	Colorado Springs....	El Paso
Groom, Robert....	Boulder	Boulder	Holmes, R. E.....	Canon City	Fremont
Groves, Dale O....	Calhan	El Paso	Honstein, F. I.....	La Veta	Huerfano
Grover, B. B.....	Colorado Springs....	El Paso	Honstein, C. E.....	Littleton	Arapahoe
Guthrie, Alice B....	Denver	Denver	Hood, J. R.....	Denver	Denver
Guthrie, Ewing C...	Denver	Denver	Hook, Merrit B....	Denver	Denver
Guthrie, J. F.....	Vineland	Pueblo	Hopkins, G. A.....	Glenwood Springs ..	Garfield
Gutstein, H. H.....	Denver	Denver	Hopkins, Guy H....	Pueblo	Pueblo
Gydesen, C. S.....	Colorado Springs....	El Paso	Hopkins, John R....	Denver	Denver
Gwynn, L. M.....	Fairplay	Chaffee	Hopkins, T. M.....	Denver	Denver
*Hadley, Edgar.....	Montrose	Montrose	Horton, D. J.....	Pamona, Calif.....	Weld
Hageman, S. V....	Las Animas	Otero	Hotchkiss, Walter K.	Brighton	Denver
Haggart, John.....	Durango	San Juan	Hotopp, T. M. H....	Aspen	Garfield
Haggart, W. W.....	Denver	Denver	Houf, W. H.....	Iliff	Northeast
Hall, A. Z.....	Eaton	Weld	Howard, C. J.....	Rutland, Mass.	Denver
Hall, Josiah N.....	Denver	Denver	Howard, J. F.....	Denver	Denver
Halley, S. C.....	Fort Collins.....	Larimer	Howard, T. Leon...	Denver	Denver
Halley, W. H.....	Denver	Denver	Howell, J. D.....	Berthoud	Larimer
Halsted, F. S.....	Denver	Denver	Howell, W. C.....	Colorado Springs....	El Paso
Ham, Judson B....	Denver	Denver	Hoyt, Ralph W....	Denver	Denver
Hammill, John P...	Denver	Denver	Hudston, R.....	Denver	Denver
Haney, J. R.....	Colorado Springs....	El Paso	Huelsmann, L. C...	Colorado Springs....	El Paso
Hanford, P. O.....	Colorado Springs....	El Paso	Hughes, T. A.....	Denver	Denver
Hanson, F. P.....	Gunnison	Unattached	Hummel, E. P.....	Sterling	Northeast
Hanson, K. K.....	Grand Junction	Mesa	Humphrey, Fred A..	Wellington	Larimer
Hardesty, W. B....	Berthoud	Larimer	Humphrys, Ethel D.	Hooper	Denver
Hards, I. B.....	Tollerburg.....	Las Animas	Hunnicutt, W. P....	Independence, Iowa...	Pueblo
Hargreaves, O. C...	Denver	Denver	Hunsaker, E. D....	Camp Crook, S. D....	Denver
Harmer, W. W.....	Greeley	Weld	Hutchinson, Wm...	Pueblo	Pueblo
Harris, Allen H....	Denver	Denver	Hutton, V. A.....	Florence	Fremont
Harris, C. E.....	Woodman	El Paso	Inglis, John.....	Denver	Denver
Harrison, Fleet H...	Hugo	Denver	Ingraham, C. B....	Denver	Denver
Hart, J. F.....	Julesburg	Northeast	Irwin, Robert S....	Denver	Denver
Hartley, J. E.....	Denver	Denver	Jackson, Edward...	Denver	Denver
Hartwell, John B...	Colorado Springs....	El Paso	Jackson, F. A.....	Salida	Chaffee
Harvey, Edward Lee	Denver	Denver	Jaeger, Chas.....	Denver	Denver
Harvey, Horace G...	Denver	Denver	Jaeger, J. R.....	Denver	Denver
Harvey, H. G., Jr...	Denver	Denver	Jaffa, B. B.....	Denver	Denver
Haskell, E. E.....	Windsor	Weld	Jayne, W. A.....	Denver	Denver
Hassenplug, Wm. F.	Cripple Creek ...	Unattached	Jeffery, J. E.....	Ordway	Otero
Hawthorne, H. M...	Weldona	Morgan	Jernigan, V. J.....	Longmont	Boulder
Hayes, A. I.....	Denver	Denver	John, Grant H.....	Englewood	Arapahoe

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Johnson, E. E.....	Cortez	San Juan	Lewis, G. B.....	Denver	Denver
Johnson, Harry A....	Ft. Morgan	Morgan	Lewis, Robert.....	Denver	Denver
Johnson, Margaret...	Boulder	Boulder	Lewis, W. B.....	Denver	Denver
Johnson, Ross W....	Denver	Denver	Lewis, W. H.....	Hotchkiss	Delta
Johnston, R. S.....	La Junta	Otero	Leyda, James H....	Denver	Denver
Johnston, W. S.....	Pueblo	Pueblo	Leyda, Paul.....	Frederick	Boulder
Jones, Glen A.....	Johnstown	Weld	Libby, Geo. F.....	Denver	Denver
Jones, S. Fosdick....	Denver	Denver	Liddle, E. B.....	Colorado Springs....	El Paso
Jones, Vera H.....	Denver	Denver	Likes, L. E.....	Lamar	Prowers
Jones, Wm. W.....	Denver	Denver	Lincoln, C. L., Jr....	Denver	Denver
Joy, Homer T.....	Colorado Springs....	El Paso	Lingenfelter, G. P...	Denver	Denver
Kaps, F. O.....	Denver	Denver	Lingenfelter, H. A...	Durango	San Juan
Katzman, Maurice...	Denver	Denver	Lipscomb, J. M....	Denver	Denver
Keir, F. E.....	La Junta	Otero	Little, Lowell.....	Hayden	Northwestern
Keller, W. C.....	Genoa	Kit Carson	Little, W. T.....	Canon City	Fremont
*Kellogg, J. H.....	Sterling	Northeast	Lockard, Lorenzo B..	Denver	Denver
Kelly, John P.....	Golden	Denver	Lockwood, C. E....	Olathe	Montrose
Kelsey, Otis H.....	Deaver	Denver	Lockwood, F. W....	Fort Morgan	Morgan
Kemble, Earl W....	Golden	Denver	Löf, A. J. O.....	Denver	Denver
Kemper, Constantine	Denver	Denver	Long, Margaret....	Denver	Denver
Kennedy, Arthur L..	Denver	Denver	Loomis, P. A.....	Colorado Springs....	El Paso
Kennedy, Geo. A....	Limon	Denver	Lorber, M. B.....	Denver	Denver
Kenney, F. W.....	Denver	Denver	Lord, B. H.....	Hanna, Wyo.....	Denver
Kent, Geo. B.....	Denver	Denver	Lorimer, Hugh.....	Towner	Pueblo
Kent, Wallace C....	Denver	Denver	Loud, Norman W....	Colorado Springs....	El Paso
Kerley, G. L.....	La Junta	Otero	Loud, Ota.....	Pueblo	Pueblo
Kern, B. F.....	Platteville	Weld	Love, Minnie C. T...	Denver	Denver
Kettlekamp, Fred O..	Colorado Springs....	El Paso	Love, Tracy R.....	Denver	Denver
Kickland, W. A....	Fort Collins	Larimer	Lovejoy, H. E.....	Rocky Ford	Otero
Killough, H. B.....	Denver	Pueblo	Low, H. T.....	Pueblo	Pueblo
King, J. W.....	Denver	Denver	Lowen, Chas. J....	Denver	Denver
Kinney, J. E.....	Denver	Denver	Lowther, R. D....	Denver	Denver
Kinzie, J. W.....	Haxtum	Northeast	Lucas, Wilbur.....	Pueblo	Pueblo
Kleiner, Moses.....	Denver	Denver	Luqueer, F. A.....	Pueblo	Pueblo
Knoch, N. H.....	Denver	Denver	Lusby, A. C.....	Brush	Morgan
Knott, Isaiah.....	Montrose	Montrose	Lyman, Chas. B....	Denver	Denver
Knowles, E. W....	Greeley	Weld	Lynch, E. B.....	Leadville	Lake
Knowles, T. R.....	Colorado Springs....	El Paso	Macomber, Geo. N...	Denver	Denver
Knuckey, C. T.....	Lamar	Prowers	Macomber, H. G....	Denver	Denver
Kracow, A. R.....	Denver	Denver	Madden, J. H.....	Colorado Springs....	El Paso
Kretschmer, Otto S..	Denver	Denver	Madler, N. A.....	Greeley	Weld
Krohn, M. J.....	Denver	Denver	Mahoney, J. J.....	Colorado Springs....	El Paso
Krueger, E. H.....	Denver	Denver	Maier, Frank J....	Denver	Denver
Kruse, May B.....	Denver	Denver	Male, J. T.....	Yampa	Northwestern
Kunitomo, N.....	Denver	Denver	Mann, Hiram B....	Denver	Denver
Laff, Herman	Denver	Denver	Manns, Rudolph....	Denver	Denver
Lamb, G. C.....	Grand Valley	Garfield	Marbourg, E. M....	Colorado Springs....	El Paso
Lamberton, Robt. F..	Denver	Denver	Markley, Arthur J..	Denver	Denver
Lamme, J. M.....	Walsenburg	Huerfano	Marmaduke, C. V...	Pueblo	Pueblo
Lamme, S. J.....	Walsenburg	Huerfano	Martin, W. F.....	Colorado Springs....	El Paso
LaMoure, H. A....	Pueblo	Pueblo	Mason, Lyman W....	Denver	Denver
Lane, Harold C....	Denver	Denver	Mathews, P. G.....	Walsenburg	Huerfano
Lang, Ray	Denver	Denver	Matlack, J. A.....	Longmont	Boulder
Langdon, E. E.....	Victor	Denver	Matthews, B. H....	Denver	Denver
Lannon, A. R.....	Denver	Denver	Matson, Wm. F....	Denver	Denver
Larimer, G. W.....	Salida	Chaffee	Maul, H. G.....	Denver	Denver
Larson, J. H.....	Wray	Mesa	Maul, R. F.....	Denver	Denver
LaRue, C. L.....	Boulder	Boulder	Maxwell, J. G.....	Canon City	Fremont
Lassen, Fritz.....	Pueblo	Pueblo	Maynard, C. W....	Pueblo	Pueblo
Latta, C. J.....	Sterling	Northeast	Maynard, Donald E..	Durango	San Juan
Lawson, J. A.....	Rocky Ford	Otero	McArthur, A. M....	Delta	Delta
Leavitt, Byron C....	Millbrook, Mass....	Denver	McBride, W. L....	Seibert	Kit Carson
Lee, George F.....	Denver	Denver	McCabe, F. H.....	Wiley	Prowers
Lee, G. H.....	Denver	Denver	McCartin, E. L....	Colorado Springs....	El Paso
Lee, H. C.....	Trinidad.....	Las Animas	McCartney, F. M...	Denver	Denver
Lee, L. W.....	La Veta	Huerfano	McCarty, D. W....	Berthoud	Larimer
LeFevre, H. W., Jr...	Denver	Denver	McCaw, J. A.....	Denver	Denver
Lefurgey, H. C....	Dolores	San Juan	McClanahan, A. C...	Delta	Delta
Lehan, J. W.....	Greeley	Weld	McClanahan, R. K...	Colorado Springs....	El Paso
Lennox, P. M.....	Colorado Springs....	El Paso	McClanahan, Z. H...	Colorado Springs....	El Paso
LeRossignol, W. J..	Denver	Denver	McClellan, W. E....	Trinidad	Las Animas
Levin, O. S.....	Denver	Denver	McClure, C. O.....	Trinidad.....	Las Animas
Levy, Maurice	Denver	Denver	McConnell, J. A....	Hugo	Kit Carson
Levy, Robt.....	Denver	Denver	McConnell, J. C....	Somerset	Delta

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
McConnell, J. F....	Colorado Springs....	El Paso	Munro, E. H.....	Grand Junction	Mesa
McCorkle, H. B.....	Colorado Springs....	El Paso	Murphy, Rex L.....	Denver	Denver
McCormick, Roscoe C	Fleming	Northeast	Myers, G. M.....	Pueblo	Pueblo
McCrossin, W. P., Jr.	Colorado Springs....	El Paso	Myers, J. T.....	Hotchkiss	Delta
McDonald, F. J.....	Leadville	Lake	Myers, S. Scott....	Durango	San Juan
McDonald, R. J.....	Leadville	Lake	Naugle, J. E.....	Sterling	Northeast
McDonald, R. J., Jr.	West Portal	Denver	Needles, J. W.....	Pueblo	Pueblo
McDonnell, J. J.....	Pueblo	Pueblo	Neeper, E. R.....	Colorado Springs....	El Paso
McDonough, J. P....	Gunnison	Chaffee	Neff, O. S.....	Flagler	Kit Carson
McFadden, J. G.....	Loveland	Larimer	Nelson, Eli	Sanatorium	Denver
McGill, Earl D.....	Edgewater	Denver	Nelson, G. E.....	Windsor	Weld
McGraw, H. R.....	Denver	Denver	Nelson, Samuel ...	Pueblo	Pueblo
McHugh, P. J.....	Fort Collins	Larimer	Newburn, W. L....	Trinidad	Las Animas
McIntyre, T. A.....	Colorado Springs....	El Paso	Newcomer, Elizabeth	Denver	Denver
McKay, J. H.....	Denver	Denver	Newcomer, N. B....	Denver	Denver
McKeen, H. R.....	Denver	Denver	Newland, C. A....	Springfield	Prowers
McKelvey, S. R.....	Denver	Denver	Newsom, H. G.....	Denver	Denver
McKeown, E. E.....	Denver	Denver	Nicoletti, Frank....	Pueblo	Pueblo
McKibben, S.....	Creede	San Luis Valley	Nifong, J. D.....	Denver	Denver
McKinnie, L. H.....	Colorado Springs....	El Paso	Noonan, G. M.....	Walsenburg	Huerfano
McLauthlin, C. A....	Denver	Denver	Norton, D. O.....	Fort Collins	Larimer
McLauthlin, H. W....	Denver	Denver	Nossaman, A. J. ...	Pagosa Springs....	San Juan
McNaught, F. H.....	Denver	Denver	O'Connor, J. W....	Denver	Denver
McNeill, F. A.....	Dove Creek	San Juan	Ogilbee, H. M.....	Manitou	El Paso
Mead, Ella A.....	Greeley	Weld	Ogle, W. M.....	Forbes	Las Animas
Meade, E. E.....	Denver	Denver	Ohmart, W. A.....	Denver	Denver
Meador, Chas. N....	Denver	Denver	Olcott, Chas. T....	Indian Wells, Ariz...	El Paso
Means, F. M.....	Holyoke	Northeast	Olmsted, G. K.....	Denver	Denver
Menkel, H. C.....	Simla, India	Denver	Olson, D. G.....	New Raymer	Weld
Menser, Bert.....	Denver	Denver	Oppenheim, S. M...	Denver	Denver
Merriman, Amherst.	Pueblo	Pueblo	O'Rourke, D. H....	Denver	Denver
Metcalf, A. W.....	Denver	Denver	Orr, Jas. S.....	Fruita	Mesa
Metz, C. W.....	Denver	Denver	Orsborn, G. E.....	Denver	Denver
Miel, Geo. W.....	Denver	Denver	Owens, R. L.....	Colorado Springs....	El Paso
Mierley, Ira C.....	Denver	Denver	Packard, Geo. B....	Denver	Denver
Miles, Amy B.....	Boulder	Boulder	Packard, Geo. B., Jr.	Denver	Denver
Miles, M. E.....	Boulder	Boulder	Packard, Louis....	Ft. Collins	Larimer
Miller, A. E.....	Delta	Delta	Packard, Robt. G...	Denver	Denver
Miller, A. H.....	Denver	Denver	Palmer, F. E.....	Sterling	Northeast
Miller, Eli A.....	Denver	Denver	Palmer, W. A.....	Castle Rock	Denver
Miller, L. A.....	Colorado Springs....	El Paso	Parker, H. M.....	Denver	Denver
Miller, L. I.....	Denver	Denver	Parker, O. T.....	Salida	Chaffee
Miller, R. B.....	Louisville	Boulder	Parker, Thadd....	Morley....	San Luis Valley
Miller, Samuel W....	Denver	Denver	Pate, C. E.....	Denver	Denver
Minner, M. G.....	Denver	Denver	Pattee, J. J.....	Pueblo	Pueblo
Minnig, Arnold....	Denver	Denver	Patterson, J. A....	Colorado Springs....	El Paso
Mitchell, D. M.....	La Salle	Weld	Patterson, R. F....	Springfield	Prowers
Mitchell, L. R.....	Eads	Prowers	Patterson, W. O....	Pueblo	Pueblo
Mitchell, Wm. C....	Denver	Denver	Paxton, R. H.....	Chandler	Fremont
Mix, Walter S.....	Denver	Denver	Peavy, I. L.....	Crested Butte....	San Juan
Mogan, W. E.....	Denver	Denver	Peck, F. B.....	Denver	Denver
Moleen, G. A.....	Denver	Denver	Peck, G. S.....	Denver	Denver
Monaghan, D. G....	Denver	Denver	Pecony, Jos. W....	Denver	Denver
Monismith, A. F. ...	Fort Lupton	Weld	Peer, W. F.....	Haxtun	Northeast
Monson, G. L.....	Denver	Denver	Peirce, F. J.....	Pueblo	Pueblo
Montgomery, D. H...	Holyoke	Northeast	Perkins, C. C.....	Denver	Denver
Mooney, W. E.....	Haxtun	Northeast	Perkins, Earl James	Denver	Denver
Moore, A. M.....	Denver	Denver	Perkins, I. B.....	Denver	Denver
Moore, F. R.....	Florence	Fremont	Perrott, E. W., Jr.	Denver	Denver
Moore, G. C.....	Littleton	Arapahoe	Pershing, C. L....	Denver	Denver
Moore, J. W.....	Denver	Denver	Pershing, H. T....	Denver	Denver
Morehouse, J. A....	Sterling	Northeast	Peterson, Edgar A.	Denver	Denver
Morgan, J. W.....	Denver	Denver	Peterson, E. H....	Grand Junction	Mesa
Morian, C. H.....	Denver	Denver	Phillips, S. G.....	Denver	Denver
Morning, J. F.....	Denver	Denver	Philpott, J. A.....	Denver	Denver
Morrill, E. L.....	Fort Collins	Larimer	Pipkin, G. P.....	Pueblo	Pueblo
Morrison, C. S.....	Colorado Springs....	El Paso	Pitney, Orville....	Cheraw	Otero
Morrison, R. G.....	Denver	Denver	*Place, O. G.....	Boulder	Boulder
Morse, C. E.....	La Junta	Otero	Plumb, Carl W....	Grand Junction	Mesa
Morrow, E. L.....	Oak Creek	Northwestern	Poley, C. W.....	Boulder	Boulder
Mortimer, J. L.....	Denver	Denver	Pollard, J. W.....	Denver	Denver
Mudd, W. G.....	Long Beach, Cal....	Denver	Porter, R. B.....	Glenwood Springs...	Garfield
Mugrage, E. R.....	Denver	Denver	Porter, V. W.....	Lafayette	Boulder
Mumey, Nolie	Denver	Denver	Pothnisje, P. J....	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Powell, Cuthbert....	Denver	Denver	Seebass, A. R.....	Denver	Denver
Powell, Henry M....	Colorado Springs....	El Paso	Sells, Virgil E.....	Denver	Denver
Pratt, Elsie S.....	Denver	Denver	Senger, Wm.....	Pueblo	Pueblo
Prewitt, Francis E....	Denver	Denver	Sevier, J. A.....	Colorado Springs....	El Paso
Prey, Duval.....	Denver	Denver	Sewall, Henry.....	Denver	Denver
Price, Evelyn B.....	Pueblo	Pueblo	Seyfarth, C. A.....	Segundo	Las Animas
Price, R. C.....	Denver	Denver	Shafer, Harry S.....	Denver	Denver
Prien, Otto Louis....	Denver	Denver	Shaffer, E. G.....	Delta	Delta
*Printz, Morris.....	Denver	Denver	Sharpley, W. H.....	Denver	Denver
Prinzing, J. F.....	Denver	Denver	Shea, R. M.....	Denver	Denver
Pugh, C. G.....	Saguache	San Luis	Sheller, W. O.....	Lamar	Prowers
Purcell, James W....	Denver	Denver	Sherman, E. M.....	Holly	Prowers
Queal, E. B.....	Boulder	Boulder	Shields, J. M.....	Denver	Denver
Ramsey, R. T.....	Denver	Denver	Shippey, O. P.....	Saguache....	San Luis Valley
Ranson, J. R.....	Denver	Denver	Shivers, M. O.....	Colorado Springs....	El Paso
Reed, C. W.....	Grand Junction.....	Mesa	Shollenberger, C. F.	Denver	Denver
Reed, Marvin W.....	Denver	Denver	Shopshire, J. W....	Pueblo	Pueblo
Reed, W. K.....	Boulder	Boulder	Shotwell, W. E.....	Denver	Denver
Reed, W. W.....	Boulder	Boulder	Shoun, D. A.....	Canon City	Fremont
Reese, Maurice	Denver	Denver	Shultz, W. M.....	Central City	Fremont
Reid, Henry S.....	Estes Park	Denver	Sickenberger, J. U.	Grand Junction.....	Mesa
Reilly, Joseph John.	Denver	Denver	Sidwell, C. E.....	Longmont	Boulder
Replogle, B. F.....	Fort Collins	Larimer	Simon, John.....	Englewood	Arapahoe
Rice, Geo. Ernest....	Pueblo	Pueblo	Simon, Saling.....	Denver	Denver
Rich, W. F.....	Pueblo	Pueblo	Sims, H. J.....	Littleton	Arapahoe
Richards, D. F.....	Denver	Denver	Singer, W. F.....	Pueblo	Pueblo
Richie, L. T.....	Trinidad.....	Las Animas	Skinner, M. G.....	Washington, D. C....	Denver
Richmond, C. E.....	Colorado Springs....	El Paso	Sloan, W. W.....	Mt. Harris	Northwestern
Rilance, Chas. D....	Denver	Denver	Smiley, A. L.....	Pueblo	Pueblo
Ringle, C. A.....	Greeley	Weld	Smith, A. E.....	Gilman	Denver
Ritterspach, F. J....	Brighton	Denver	Smith, A. S.....	Colorado Springs....	El Paso
Robb, F. C.....	Denver	Denver	Smith, C. A.....	Monte Vista..	San Luis Valley
Robb, Wm. J.....	Denver	Denver	Smith, Chas. D....	Kline	San Juan
Robe, R. C.....	Pueblo	Pueblo	Smith, Fisher Elmus.	Denver	Denver
Roberts, J. O.....	Denver	Denver	Smith, H. A.....	Delta	Delta
Roberts, W.....	Denver	Denver	Smith, R. G.....	Denver	Denver
Roberts, Wm. J.....	Denver	Denver	Smith, W. A.....	Colorado Springs....	El Paso
Robertson, E. H....	Boulder	Boulder	Snair, W. L.....	Louisville	Boulder
Robbins, A. W.....	Durango	San Juan	Snedec, J. F.....	Pueblo	Pueblo
Robinovitch, Louise G.	Golden	Denver	Snyder, H. W.....	Denver	Denver
Robinson, E. F.....	Denver	Denver	Soland, Louis W....	Denver	Denver
Robinson, G. W.....	Trinidad.....	Las Animas	Sorensen, George....	La Junta	Otero
Robinson, Jas. M....	Denver	Denver	Spangleberger, M. A.	Denver	Denver
Roe, John F.....	Denver	Denver	Spaulding, W. F....	Greeley	Weld
Roehrig, Karl F.....	Denver	Denver	Spearman, F. S.....	Phoenix, Ariz.....	Garfield
Rogers, F. E.....	Denver	Denver	Speck, Richard T....	McPhee	Denver
Root, M. R.....	Denver	Denver	Spencer, F. R.....	Boulder	Boulder
Rothrock, F. B.....	Colorado Springs....	El Paso	Spicer, Chas. M....	Denver	Denver
Rothwell, P. D.....	Denver	Denver	Spitzer, W. M.....	Denver	Denver
Rothwell, W. D.....	Denver	Denver	Spivak, C. D.....	Denver	Denver
Ruegnitz, L. H.....	Denver	Denver	Sprecher, Geo. W....	Brush	Northeast
Rummell, R. J.....	Lamar	Prowers	Spring, John A.....	Montrose	Montrose
Rupert, L. E.....	Florence	Fremont	Stahl, Arthur W....	Denver	Denver
Rusk, H. S.....	Pueblo	Pueblo	Stains, Minnie E....	Colorado Springs....	El Paso
Russell, James E., Jr.	Denver	Denver	Stanley, A. F.....	Rouse	Huerfano
Ryan, J. G.....	Denver	Denver	Staunton, A. G.....	Denver	Denver
Ryder, Charles.....	Colorado Springs....	El Paso	Stein, H. B.....	Denver	Denver
Sadler, E. L.....	Fort Collins	Larimer	Steinberg, B. M....	Denver	Denver
Safarik, L. R.....	Denver	Denver	Steinhardt, E. H....	Pueblo	Pueblo
Salisbury, E. I.....	Chicago, Ill.....	Denver	Stemen, W. E.....	Detroit, Mich.	Denver
Sams, Louis V.....	Denver	Denver	Stephenson, F. B....	Denver	Denver
Savage, Joseph.....	Denver	Denver	Stevens, F. T.....	Colorado Springs....	El Paso
Scannell, E. J.....	Preston, Cuba....	Las Animas	Stewart, M. J.....	Denver	Larimer
Schaefer, S. W.....	Colorado Springs....	El Paso	Stickles, Albert....	La Junta	Otero
Schermerhorn, F....	Montrose	Montrose	Stiles, Geo. Whitfield	Denver	Denver
Scherrer, E. A.....	Denver	Denver	Stockham, A. H.....	Delta	Delta
Schmidt, E. A.....	Denver	Denver	Stoddard, T. A.....	Pueblo	Pueblo
Schmidt, F. M.....	Boulder	Boulder	Stough, C. F.....	Colorado Springs....	El Paso
Schroeder, R. H.....	Denver	Denver	Stratton, Mary R....	Denver	Denver
Schultz, H. H.....	Woodman	El Paso	Streamer, C. W.....	Pueblo	Pueblo
Schwer, J. L.....	Pueblo	Pueblo	Strickler, D. A.....	Denver	Denver
Scott, John Terrill..	Denver	Denver	Strong, J. C.....	Leadville	Lake
Sears, Thad P.....	Denver	Denver	Stubbs, A. L.....	La Junta	Otero
Sedwick, Wm. A....	Denver	Denver	Struthers, J. E.....	Denver	Denver

Name.	Post Office.	Constituent Society.	Name.	Post Office.	Constituent Society.
Stubbs, J. E.....	La Junta	Otero	Wear, H. H.....	Denver	Denver
Stuver, H. W.....	Denver	Denver	Weatherford, J. E... Denver	Denver	Denver
Sullivan, Helen F... Denver	Denver	Denver	Weaver, Florence R. Boulder	Boulder	Boulder
Sunderland, O. R... East Portal	Denver	Denver	Weaver, John..... Greeley	Greeley	Weld
Sunderland, W. E... Denver	Denver	Denver	Webb, E. C..... Canon City	Canon City	Fremont
Swan, W. H..... Colorado Springs.....	El Paso	El Paso	Webb, G. B..... Colorado Springs.....	El Paso	El Paso
Swaggart, L. B..... Denver	Denver	Denver	Weidlein, F. H..... Palisade	Palisade	Mesa
Swenson, R. T..... Brodhead.....	Las Animas	Las Animas	Weiner, M..... Denver	Denver	Denver
Swerdfeger, E. B... Denver	Denver	Denver	Weiss, F. H..... Denver	Denver	Denver
Taussig, A. S..... Denver	Denver	Denver	Wenk, J. A..... Colorado Springs	Colorado Springs	Denver
Taylor, A. G..... Grand Junction.....	Mesa	Mesa	West, T. J..... Pasadena, Calif.....	Pasadena, Calif.....	Denver
Taylor, Edward E... Denver	Denver	Denver	Wetherill, H. G.... Monteray, Calif.....	Monteray, Calif.....	Denver
Taylor, H. L..... Denver	Denver	Denver	Whitaker, H. L.... Denver	Denver	Denver
Taylor, McDurham.. Aztec, N. M.....	San Juan	San Juan	Whitaker, W. O.... Denver	Denver	Kit Carson
Taylor, R. D..... Monte Vista ..	San Luis Valley	San Luis Valley	White, H. T..... Denver	Denver	Denver
Taylor, R. R..... Pueblo	Pueblo	Pueblo	White, H. W..... Fruita	Fruita	Mesa
Taylor, T. C..... Fort Collins	Larimer	Larimer	White, W. J..... Longmont	Longmont	Boulder
Tennant, C. E..... Denver	Denver	Denver	Whitehead, R. W... Denver	Denver	Denver
Tepley, L. V..... Denver	Denver	Denver	Whiteley, P. W.... Denver	Denver	Denver
Thayer, M. D..... Denver	Denver	Denver	Whitney, H. B.... Denver	Denver	Denver
Thearle, Wm. Henry Denver	Denver	Denver	Whittaker, D. L.... Hayden	Hayden	Northwestern
Thomas, Atha Denver	Denver	Denver	Wiest, Newton..... Denver	Denver	Denver
Thompson, C. W.... Pueblo	Pueblo	Pueblo	Wilcox, H. W..... Denver	Denver	Denver
Thompson, David... Denver	Denver	Denver	Wilcox, Sarah C.... Denver	Denver	Denver
Thompson, D. G.... Trinidad.....	Las Animas	Las Animas	Wilkins, C. F..... Fort Collins	Fort Collins	Larimer
Thompson, J. W.... Pueblo	Pueblo	Pueblo	Wilkinson, C. H.... Canon City	Canon City	Fremont
Thompson, Lewis N. Granada	Prowers	Prowers	Wilkinson, W. L.... Lafayette	Lafayette	Boulder
Thompson, N. A.... Denver	Denver	Denver	Willett, F. E..... Steamboat Springs	Steamboat Springs	Northwestern
Thompson, W. E.... Greeley	Weld	Weld	Williams, A. F..... Fort Morgan	Fort Morgan	Morgan
Thomson, Wilber E. Hugo	Denver	Denver	Williams, A. H..... Denver	Denver	Denver
Threkeld, Richard L Denver	Denver	Denver	Williams, G. S..... Lamar	Lamar	Prowers
Thulin, H. F..... Denver	Denver	Denver	Williams, H. L.... Flagler	Flagler	Kit Carson
Tidd, C. H..... Telluride	Delta	Delta	Williams, James E. Denver	Denver	Denver
Timmons, E. L..... Colorado Springs.....	El Paso	El Paso	Williams, Judson... Colorado Springs.....	Colorado Springs.....	El Paso
Todd, J. C..... Boulder	Boulder	Boulder	Williams, N. C.... Denver	Denver	Denver
Tower, F. A..... Denver	Denver	Denver	Williams, S..... Denver	Denver	Denver
Townsend, Guy W. Denver	Denver	Denver	Williams, W. W.... Denver	Denver	Denver
Tremaine, Harmon.. Boise, Idaho	Denver	Denver	Williamson, A. R... Pueblo	Pueblo	Pueblo
Triplett, T. A..... Denver	Denver	Denver	Willis, C. H..... Denver	Denver	Denver
Trotter, Jay R..... Mancos.....	San Juan	San Juan	Wilson, R. E..... Denver	Denver	Denver
Troute, F. R..... Denver	Denver	Denver	Winemiller, L. H... Denver	Denver	Denver
Trueblood, Chas.... Monte Vista ..	San Luis Valley	San Luis Valley	Winston, A. L..... Colorado Springs.....	Colorado Springs.....	El Paso
Trumbauer, C. A.... Denver	Denver	Denver	Winternitz, David... Colorado Springs.....	Colorado Springs.....	El Paso
Tubbs, W. R..... Carbondale	Garfield	Garfield	Wise, O. C..... Pueblo	Pueblo	Pueblo
Tucker, Beverley... Colorado Springs.....	El Paso	El Paso	Withers, Sanford... Denver	Denver	Denver
Turner, W. E..... Brush	Morgan	Morgan	Wolf, J. A..... Denver	Denver	Denver
Turrell, H. C..... Durango	San Juan	San Juan	Wolf, John G..... Pueblo	Pueblo	Pueblo
Tygart, C. A..... Denver	Denver	Denver	Wolfe, R. E..... Rocky Ford	Rocky Ford	Otero
Uji, Shigenatsu.... Denver	Denver	Denver	Wollenweber, L. C... Denver	Denver	Denver
Ulmer, H. D..... Denver	Denver	Denver	Woodbridge, J. H... Pueblo	Pueblo	Pueblo
Vanderhoof, D. A... Colorado Springs.....	El Paso	El Paso	Woodcock, B..... Greeley	Greeley	Weld
Van Der Schow, G. E. Fowler	Otero	Otero	Woodward, Harry... Colorado Springs.....	Colorado Springs.....	El Paso
Van Meter, L. M.... Denver	Denver	Denver	Woodworth, R. G... Rocky Ford	Rocky Ford	Otero
Van Meter, S. D.... Denver	Denver	Denver	Work, Hubert..... Washington, D. C....	Washington, D. C....	Pueblo
Van Meter, Virginia C. New York City.....	Denver	Denver	Work, Philip..... Denver	Denver	Denver
Van Stone, L. M.... Denver	Denver	Denver	Workman, Cloyd W. Denver	Denver	Denver
Van Stone, W. D.... Denver	Denver	Denver	Worthington, A. K... Denver	Denver	Denver
Van Zant, C. B.... Denver	Denver	Denver	Wright, M. G..... Denver	Denver	Denver
Vogt, H. J..... Pueblo	Pueblo	Pueblo	Wright, R. E..... Loveland	Loveland	Larimer
Vroom, J. N..... Denver	Denver	Denver	Wyatt, Kon..... Canon City.....	Canon City.....	Fremont
Wade, L. H..... Denver	Denver	Denver	Yaker, D. M..... Denver	Denver	Denver
Waggener, W. R.... Denver	Denver	Denver	Yale, Frank C..... Berwind	Berwind	Las Animas
Walker, C. E..... Denver	Denver	Denver	Yegge, W. B..... Denver	Denver	Denver
*Wallace, F. E..... Pueblo	Pueblo	Pueblo	Yont, Kate..... Denver	Denver	Denver
Wallace, G. C..... Denver	Denver	Denver	Young, H. B..... Denver	Denver	Denver
Walton, James B.... Denver	Denver	Denver	Youngman, J. W.... Wiggins	Wiggins	Morgan
Warder, W. S..... Boulder	Boulder	Boulder	Zarit, John..... Denver	Denver	Denver
Waring, J. J..... Denver	Denver	Denver	Zillman, O. E..... Denver	Denver	Denver
Warner, G. R..... Denver	Mesa	Mesa	Zimmerman, Wm... Manzanola	Manzanola	Otero
Wasson, W. W..... Denver	Denver	Denver			
Waters, P. A..... Denver	Denver	Denver			
Watson, W. V..... Plateau City	Mesa	Mesa			

*Deceased.

Minutes of the 1926 State Medical Society at Lander, Wyoming

Grand Theater, 4:40 P. M.

July 12, 1926.

Meeting of the House of Delegates was called to order by President C. H. Platz at the above place and time.

The following delegates were present:

Dr. W. W. Yates, Casper, Natrona County.
Dr. H. L. Harvey, Casper, Natrona County.
Dr. C. H. Platz, Casper, Natrona County.
Dr. A. P. Kimball, Casper, Natrona County.
Dr. J. L. Linn, Lander, Fremont County.
Dr. Francis W. Smith, Lander, Fremont County.
Dr. Evald Olson, Lovell, Northwestern County.
Dr. F. A. Mills, Powell, Northwestern County.
Dr. Chester E. Harris, Basin, Northwestern County.

Dr. Galen A. Fox, Cheyenne, Laramie County.
Dr. F. C. Beck (Proxy), Cheyenne, Laramie County.

Dr. V. J. Keating, Sheridan, Sheridan County.
Dr. W. A. Steffen, Sheridan, Sheridan County.
Dr. Earl Whedon, Sheridan, Sheridan county.
Dr. J. L. Wicks, Evanston, Uinta County.
Quorum present.

The minutes of the meetings of June 22 and 23, 1925, were read by the secretary and approved as read.

President Platz thereupon appointed the following committees:

Resolutions: Dr. Maurice Goldberg, Dr. W. W. Yates, Dr. F. A. Mills.

Time and place of the 1927 meeting: Dr. Galen A. Fox, Dr. H. L. Harvey.

In the absence of the councilors, the Chair appointed a special auditing committee: Dr. W. A. Steffen, Dr. F. L. Beck, Dr. E. R. Schunk.

President Platz introduced Mrs. Margaret Phifer of Wheatland, who addressed the House of Delegates and asked that the House support a proposed bill which will be introduced in the Legislature creating the office of a full time secretary for the State Board of Nurses' Examiners. She also requested that all doctors inquire into the status of every trained nurse to find out if she is duly registered before her employment by the physician.

The Chair thanked Mrs. Phifer for her address and referred the questions to the Committee on Resolutions.

Election of officers resulted in the following being duly elected by a unanimous vote:

President, Dr. V. J. Keating, Sheridan.
1st Vice President, Dr. F. A. Mills, Powell.
2nd Vice President, Dr. A. P. Kimball, Casper.
3rd Vice President, Dr. Maurice Goldberg, Kemmerer.

The President called the 1st Vice President, Dr. F. A. Mills, to the chair and nominated Dr. Earl Whedon as Secretary. Dr. Platz moved that the nominations close and that the rules be suspended and that the Treasurer, Dr. Evald Olson, cast the entire vote of the House of Delegates for Dr. Earl Whedon as Secretary. Dr. J. L. Linn seconded the motion. The Vice President put the motion, which he announced was duly carried after the vote and he recognized Dr. Evald Olson the Treasurer, who thereupon cast the vote of the House of Delegates and the Vice President, Dr. F. A. Mills, declared Dr. Earl Whedon duly elected as

Secretary. Treasurer, Dr. Evald Olson, Lovell; Delegate to A. M. A., Dr. Geo. P. Johnston, Cheyenne; Alternate to A. M. A., Dr. Galen A. Fox, Cheyenne; Member of Medical Defense, Dr. Chester E. Harris, Basin.

Council, or three-year term, Dr. H. L. Harvey, Casper.

Councilor, two-year term, Dr. C. W. Jefferies, Rawlins.

Dr. C. F. Kemper of Denver, editor of "Colorado Medicine," of Colorado, addressed the House of Delegates on the value and purposes of Colorado Medicine as a joint journal of the medical societies of Colorado and Wyoming.

Dr. Earl Whedon requested the House of Delegates to elect someone else as editor of Colorado Medicine for the Wyoming section and advised the division of the Journal into two parts, that each society should have its own section.

Dr. G. M. Anderson of Cheyenne was duly elected as editor for the coming year.

The Treasurer, Dr. Evald Olson, made the following report, which was referred to the Auditing Committee appointed by Dr. Platz.

TREASURER'S REPORT

To the Officers and Members of the Wyoming State Medical Society, your Treasurer begs to submit the following report.

General Fund

Aug. 4, 1925, to balance in Bank of Commerce according to bank statement	\$ 714.30	
July 10, 1926, to deposits in Bank of Commerce and checks received from June 23, 1925, to date		700.00
To 50 per cent dividend from the first note, Bank of Basin	\$ 259.82	
July 10, by vouchers paid		\$ 682.90
Balance		991.22
	\$1,674.12	\$1,674.12

Defense Fund

Aug. 4, 1925, to balance in Bank of Commerce according to bank statement	\$1,145.00	
July 10, 1926, to deposits in Bank of Commerce and checks received from June 23, 1925, to date		680.00
To 50 per cent dividend from first note, Bank of Basin	1,019.93	
To interest on Liberty Bond	42.50	
Reduction on trust certificates	50.00	
Oct. 8, 1925, by one second Liberty Bond		\$1,025.81
Dec. 20, 1926, 100 Nation-Wide trust certificates		1,200.00
Balance		711.62
Total	\$2,937.43	\$2,937.43

Vaccination

Sept. 23, 1925, to balance in Bank of Commerce according to bank statement	\$ 235.00	
July 10, 1926, balance		\$ 235.00
Total	\$ 235.00	\$ 235.00
Sept. 23, 1926, First National Bank of Basin to balance	\$2,559.49	

Aug. 27, 1925, 15 per cent dividend	383.93	
March 19, 1926, 35 per cent dividend	895.82	
July 10, 1926, balance.....	1,279.74	
Total	\$2,559.49	\$2,559.49

Liberty Bond Account

Oct. 8, 1925, to one second Liberty Bond, par value.....	\$1,000.00	
To premium 906 accrued interest 16.53.....	25.59	
Postage and insurance 22.....	.22	
	\$1,025.81	
July 10, 1926, by two coupons....	42.50	
Balance	983.31	
Total	\$1,025.81	\$1,025.81

Total amount of cash and securities.....\$4,087.84
Respectfully submitted,

DR. EVALD OLSON,
Treasurer."

Lovell, Wyo., July 10, 1926.

Dr. Evald Olson explained that he had not secured a surety bond on account of not knowing to whom to make the bond payable. Dr. Whedon said he secured a surety bond made payable to the Wyoming State Medical Society and that the bond was filed and held by President C. H. Platz.

Dr. W. W. Yates moved, and it was duly seconded, that the Treasurer be instructed to invest all the funds, except a small amount needed for current expenses of the State Medical Society, in U. S. Bonds, which motion was duly put and carried.

Thereupon the House of Delegates adjourned to meet in the Noble Hotel at 8:00 a. m., July 13, 1926.

EARL WHEDON,
Secretary.

Lander, Wyo., July 13, 1926.

8:30 a. m.—Noble Hotel.

The House of Delegates met at the above time and place.

Quorum present:

Dr. W. Yates, Drs. Steffen, Keating, Whedon, Beck, Fox, Mills, Harris, Olson, Piercie, Linn.

The Committee on Time and Place of Next Meeting reported that the Joint Committee of Dentists and the M.D.'s had selected Cheyenne for 1927, which report was adopted and the Society voted to hold its 1927 meeting in Cheyenne as a joint medical and dental meeting, the time to be fixed by Committee on Program.

It was voted to hold a joint medical meeting in 1928 in the Yellowstone National Park by the states of Wyoming, Montana and Idaho. Arrangements to be left to the State Secretary and such other help as he needed.

The Auditing Committee made the following report:

Lander, Wyo., July 13, 1926.

We, the undersigned Auditing Committee, duly appointed, on this date audited the books, accounts and reports of the Treasurer and Secretary of the Wyoming State Medical Society and found them to be correct.

DR. EDWARD R. SCHUNK,
DR. F. L. BECK,
DR. W. A. STEFFEM.

Which report was duly accepted and committee discharged.

The Committee on Resolutions reported as follows:

The 24th annual meeting of the Wyoming State Medical Society. Your Committee on Resolutions respectfully submit the following resolutions:

Whereas, The Lord Mayor of the city of Lander, after stilling the storm, clearing the skies and drying the roads, did, in that truly western, hospitable manner, extend to us the glad hand of welcome; and

Whereas, The noble scribe of this remnant of the Indian's happy hunting ground, L. L. Newton, did further bring to us the fact of the joy of these people for our presence among them; be it

Resolved, That we, the Wyoming State Medical Society, do hereby extend our thanks and register our appreciation for this most pleasant reception; further be it

Resolved, That we extend our most hearty thanks and appreciation to the school board and owners of Grand Theater for the use of their respective buildings, and to the good physicians, Commercial Club for the delightful picnic and lunch, and to the Kiwanis Club who served it; and be it further

Resolved, That we thank the members of the medical profession from out of the state who have so ably assisted us in our program;

Whereas, It has been the custom in times past to hold joint annual meetings in Wyoming with the Dental Society; and

Whereas, The attendance of our Medical Society is increasing and is expected to increase in the future; be it

Resolved, That the Medical Society of the State of Wyoming discontinue the holding of joint annual meetings with the Wyoming Dental Society after the Cheyenne meeting in 1927 and hold its annual meeting at such time and place as may suit its own convenience; further be it

Resolved, That we heartily endorse the efforts of the Wyoming State Nurses' Association in their efforts to improve the conditions of the graduate nurse, in this state, and we respectfully request each physician to ascertain that each graduate nurse in his employ is registered in Wyoming.

Respectfully submitted,

DR. M. J. GOLDBERG,
DR. W. W. YATES,
DR. F. A. MILLS.

The above resolutions were duly adopted by motion carried.

The following amendment to the constitution was proposed by Dr. Earl Whedon and read for the first time:

"Article XI, officers be made to read Sec. 1; The officers of this Association shall be a President, a President elect, a Vice President, a Secretary, a Treasurer and three councilors."

That the by-laws be amended as follows:

Adding to Chapter VI, "Duties of the Officers." The following words to Sec. 1: The President Elect shall take office as President at the next meeting following his election. There shall be elected a President elect each year beginning with the year of the adoption of this section and no President shall be elected after the adoption of this amendment.

That Sec. 2 be amended to read: "The Vice President shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Vice President shall succeed him."

Adjourned to meet July 13 at 3:30 p. m.

Lander, Wyo., July 13, 1926.

High School, 3:30 p. m.

Special meeting of the House of Delegates called to order by President Keating, who reported that Dr. T. J. Drew of the Wyoming Dental Society wished to address the House of Delegates. There being no objection, Dr. Drew stated that the Wyoming Dental Association proposed to introduce into the Legislature a bill providing for the free treatment of school children's teeth and asking the assistance of the members of the State Medical Society in its passage. This matter was referred to the new committee which the incoming President would appoint on Public Policy and Legislation.

The Medical Defense Committee reported as follows:

"To the members of the House of Delegates. Gentlemen: We, your Committee on Medical Defense, beg leave to report as follows for the period of June 24, 1925, to July 12, 1926:

Chapter (XII) twelve of our By-Laws makes it the duty of this committee to make our annual report to your honorable body.

At the close of the Buffalo meeting there was on hand in the Medical Defense fund in the Treasurer, Dr. Harris' hands, and turned over to the new Treasurer, Dr. Evald Olson	\$1,060.00
State Secretary collected and passed into Treasurer Olson's hands during the year	765.00
Treasurer Olson received from receiver of Basin Bank 50 per cent dividend of the former funds which were in bank	1,019.93
Interest received	42.50
Making a total of	\$2,887.43

Dr. Harris believes that the bank will still be able to pay an additional dividend of about 15 per cent.

Nothing has been spent from this fund this year or even since its organization. Under our By-Laws this would allow about \$1,000.00 to be spent if required in the defense of our first case. As our By-Laws limit the amount to be spent to one-third of the balance in the defense fund. This fund is growing so fast that all objection to not having any funds on hand is all bunk. We have the money and it is in and will be invested in U. S. Liberty Bonds.

During the past year one call was referred to your committee. On April 22, 1926, Dr. L. D. Johnson notified the Secretary that he had been sued for failure to remove all the tonsils in doing a tonsilectomy in April, 1922.

It seems that he had turned over an unpaid bill for \$164 for this operation and their medical work, and that a cross petition had been filed and would come up in Lander, May 3rd. Your Secretary at once phoned our President and the members of the Defense Committee, and although Dr. Johnson was found to have no legal claim on the Society because he had not paid his 1926 dues, it was the opinion of the President and the committee that we should assist in the defense of this case. Dr. Johnson also had insurance in the Medical Protective Company of Fort Wayne, Indiana, so all we would be called upon was to furnish witness in such cause.

Dr. Platz had Drs. Kimball and Dr. Hassed, who read papers before the Lander Society, see the Lander physicians and interviewed them and inquired into the case.

Dr. Johnson never returned the questionnaire blank sent him, but we still went ahead, although

we do not and will not consider this as a precedent in future cases.

This case was knocked out of court and the honorable judge took a very strong position and informed the plaintiff and attorney that he would not allow such cases in his court. This ended our first case and at no cost to the Society.

Upon motion by Dr. A. P. Kimball, seconded and carried, the Secretary was instructed to draw a warrant for one-half of the expenses of the entertainment for the Lander meeting.

Thereupon the House of Delegates adjourned.

EARL WHEDON,
Secretary.

THE WYOMING STATE MEDICAL SOCIETY

ALBANY COUNTY

Name	Address
Brown, Frank W.	Laramie
Hamilton, A. B.	Laramie
Leake, R. M.	Laramie
McCollum, H. E.	Laramie
Markley, J. P.	Laramie
Price, J. W.	Laramie
Turner, E. M.	Laramie
Williams, L. A.	Laramie

FREMONT COUNTY

Cogswell, J. G.	Riverton
Jewell, E. L.	Shoshoni
Linn, J. L.	Lander
Replogle, J. F.	Lander
Smith, W. Francis	Lander
Tonkin, A. B.	Riverton
Wright, C. A.	Hudson

LARAMIE COUNTY

Anderson, G. M.	Cheyenne
Beard, C. Y.	Cheyenne
Beck, F. L.	Cheyenne
Conway, J. H.	Cheyenne
Day, W. R.	Cheyenne
Fox, G. A.	Cheyenne
Guthrie, J. B.	Cheyenne
Hansen, H. P.	Burns
Henneberry, I. J.	Cheyenne
Johnston, G. P.	Cheyenne
Magrath, F. E.	Cheyenne
Mylar, W. K.	Cheyenne
Nelson, N. C.	Cheyenne

LARAMIE COUNTY

Shingle, J. D.	Cheyenne
Savory, G. N.	Cheyenne
Wetlaufer, N. R.	Cheyenne
Strader, G. L.	Cheyenne
Wyman, W. A.	Cheyenne

NATRONA COUNTY

Bryant, W. H.	Casper
Barger, G. S.	Casper
Dacken, V. R.	Casper
Dean, F. A.	Casper
Frost, I. N.	Casper
Geis, N. C.	Casper
Hansard, J. R.	Casper
Harvey, H. L.	Casper
Johnson, L. D.	Casper
Kamp, J. C.	Casper
Keith, M. C.	Casper
Kimball, A. P.	Casper
Lathrop, H. R.	Casper
Malott, R. J.	Casper
McLellan, A.	Casper
McDermott, W. D.	Casper
Morad, N. E.	Casper
Nolan, N. J.	Casper
Platz, C. H.	Casper
Reichenbach, H. A.	Casper
Reeve, Roscoe H.	Casper

Name	Address
Riach, T. J.	Casper
Roach, J. E.	Midwest
Seibel, R. F.	Casper
Smith, Mark H.	Los Angeles, Calif, formerly Casper
Smith, G. C.	Casper

NATRONA COUNTY

Smith, Kathryn	Casper
Whitehill, J. E.	Casper
Yates, W. W.	Casper

NIOBRARA COUNTY

Hassed, W. H.	Lusk
Morris, M. L.	Lusk
Murphy, G. D.	Keeline

NORTHWESTERN COUNTY

Bunten, W. A.	Worland
Clark, P. J.	Powell
Gorder, J. W.	Greybull
Gray, W. O.	Worland
Glassman, Fred	Worland
Graham, W. A.	Powell
Hale, R. W.	Thermopolis (Life Member)
Harris, C. E.	Basin
Harris, H. T.	Basin
Howe Louis	Cody (Life Member)
Horsley, W. W.	Lovell
Kinney, D. B.	Cody
Lane, F. M.	Cody
Lewellen, J. D.	Cody
Lane, Chas. E.	Elk Basin
Mills, F. A.	Powell
Myre, S. L.	Greybull
Olson, Evald	Lovell
Pierce, J. R.	Gebo
Trueblood, R. C.	Cody
Wilson, J. D.	Grass Creek
Whitlock, J. R. A.	Powell

PLATTE COUNTY

Fish, C. E.	Wheatland
Huffman, F. G.	Wheatland
Holtz, Paul R.	Wheatland
Phifer, F. W.	Wheatland
Smith, E. R.	Wheatland

SHERIDAN COUNTY

Bradfield, J. H.	Sheridan
Crane, R. E.	Sheridan
Clegg, E. G.	Monarch
Dennison, E. G.	Sheridan
Keating, V. J.	Sheridan
Johnson, S. W.	Sheridan
Roberts, W. H.	Sheridan
Schunk, E. R.	Sheridan
Stevenson, C. E.	Sheridan
Steffen, W. A.	Sheridan
Marshall, R. E.	Sheridan
Stewart, J. G.	Sheridan
Taggart, A. T.	Parkman
Whedon, Earl	Sheridan
Veach, O. L.	Sheridan

SWEETWATER COUNTY

Cody, M. M.	Winton
Chamber, O. C.	Rock Springs
Arbogast, H. J.	Rock Springs
Goodnough, J.	Rock Springs
Fuhuru, J. E.	Reliance
Lauzer, E. S.	Rock Springs
Pollard, A. L.	Dines
Saunders, R. H.	Superior
Wanner, J. G.	Green River
Barber, Raymond	Rawlins
Barbee, Merle	Torrington
Carter, C. Dana	Thermopolis
Chiasson, J. P.	Torrington
Horton, F., Sr.	Newcastle
Goldberg, Maurice	Kemmerer

Name	Address
Jeffrey, C. W.	Rawlins
Hunter, J. S.	Gillette
Havely, J. M.	Torrington
Pinkerton, H. E.	Encampment
Keller, J. P.	Douglas
Knebel, W. J.	Buffalo
Marshall, B. W.	Green River
Swisher, T. J.	Rawlins
Storey, L. W.	Douglas
Krampert, F. S.	Rawlins

UINTA COUNTY

Fosner, L. E.	Evanston
Holland, J. H.	Evanston
Solier, C. H.	Evanston
Thompson, A. P.	Evanston
Wicks, J. L.	Evanston

Dr. Felix Baum, browsing among the tomes of the New York Academy of Medicine, found reproduced in the Life of Koch by Martin Kirchner the following verses:

THE DEATH OF ROBERT KOCH

March 27, 1910.

By Paul Warncke

Er hat mit seines Geistes Fackel tief
 Ins dunkle Todestral hineingeleuchtet.
 Aufsprang das Tor, als er sein "Sesam" rief,
 Und Augen wurden hell, die leidbefeuchtet.
 Im Leben fand er Tod, im Tode Leben,
 Und unermüdlich vorwärts drang sein Streben.
 Zu frühe rief ihn ab ein jäh Gebot.
 Warum so früh?
 Ihn fürchtete der Tod.

Which may be rendered thus:

His Spirit's torch threw light
 Deep into Death's dark vale.
 The door sprang open at his "Sesam's" might,
 And eyes grew bright which once were grief-
 bedimmed.
 In life he found death, in death new life,
 And tireless forwards pressed his striving.
 Too soon the hasty call that took him hence!
 And why so soon?
 Death feared him.

H. S.

Our Funny Ancestors

A gentleman opened doors for ladies.
 And at dances wore gloves lest he soil his part-
 ner's gown.
 And in drawing rooms juggled top hat, cane,
 gloves, bread and butter, cup of tea and conver-
 sation.
 And in the evenings asked her father's permis-
 sion to sit in the parlor with daughter.
 And at dinner parties abstained from smoking
 until the ladies had left the table.
 That was back in the age when, in dancing, the
 feet were employed.—Goblin.

There is the old saying, it has become a bro-
 mide, we fear, that "an apple a day keeps the
 doctor away." We have a feeling that two apples
 a day would put all the doctors out of business.
 It is said by some supposedly wise persons that
 no other fruit except the apple could have sur-
 vived the Garden of Eden story. The apple started
 off with a bad name, but it soon rehabilitated its
 fame and its fortune.

BOOK REVIEWS

The Therapy of Puerperal Fever. By Privatdozent Dr. Robert Koehler, Formerly Assistant of the Gynecological Department of the Krankenhaus Wieden (Director: Hofrat Professor Dr. Josef Halban) in Vienna, Austria. American Edition Prepared by Hugo Ehrenfest, M.D., F.A.C.S. Associate in Obstetrics, Washington University School of Medicine, Obstetrician and Gynecologist of the Jewish Hospital, Consulting Obstetrician to St. Louis Maternity Hospital, St. Louis. With Twenty-seven Illustrations. St. Louis: The C. V. Mosby Company. 1925. Price, \$4.00.

This book was not written because the author had a new plan of treatment to promote. It presents a clear and intelligent discussion of methods which have been, as well as of those still in use in the treatment of puerperal fever. The author's opinions are not second hand. He has had a large experience. He has tried every form of treatment which might reasonably be expected to benefit a woman with child-bed fever. He has watched the result with judicial temper and made a careful and impartial invoice of our therapeutic resources. The conclusion is a sad one. "Convincingly good results cannot be proved for any form of therapy so far suggested. Certainly not much hope can be placed in operative interference. This we are taught by experience and by studies at autopsies. The future chances of medical treatment and especially chemotherapy seem somewhat better. There is no reason to hope that along these lines some day the truly etiologic-curative remedy might be discovered."

Whoever wishes to read a sane discussion of the methods of treating puerperal fever will find it in this book. It contains a very extensive index to the literature on the subject.

CHARLES ELDER.

The Practical Medicine Series. Comprising eight volumes on the Years' Progress in Medicine and Surgery. Under the General Editorial Charge of Charles L. Mix, A.M., M.D. Volume VI, General Therapeutics, Edited by Bernard Fantus, M.S., M.D., Associate Clinical Professor of Medicine, Rush Medical College of the University of Chicago; Member, Revision Committee United States Pharmacopeia and of National Formulary Revision Committee. Series 1925. Chicago, The Year Book Publishers, 304 South Dearborn Street. Price \$2.25 per volume, \$15.00 for series of eight volumes.

This is one of a series of eight volumes covering the field of recent developments in medicine and surgery. The author is a sufficient recommendation for its perusal. The contents, true to its title, are very brief yet concise statements regarding the new drugs and therapeutic measures, giving the current opinions as to their value and their indications.

The chapter on Physio-therapy will be enlightening to anyone still doubting its influence in certain pathological conditions. This is an excellent reference book.

The diction—that of Dr. Fantus himself; the arrangement of its material contents; the easily read print and compactness, all are most commendable to its author and publishers.

A. S. CECCHINI.

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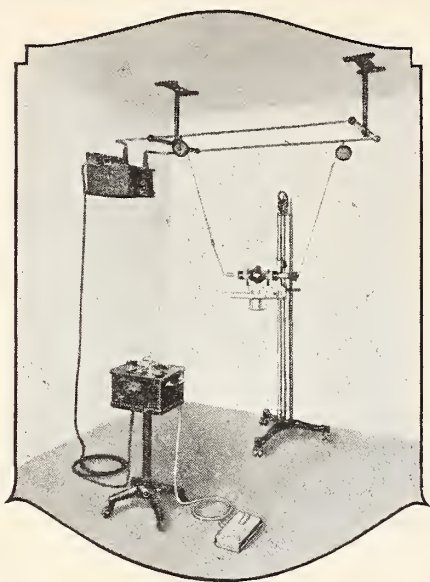
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TUNING IN

Serious Outbreak of Septic Sore Throat at Guilford, Conn.

A report of an outbreak of 169 cases of septic sore throat with 19 cases of illness listed for investigation at Guilford, Conn., is given in the weekly bulletin of the Connecticut State Department of Health for August 16. Many patients at first had only a mild or moderately severe sore throat. After two or three days the symptoms abated, the patients felt well and went back to work. Then followed in several cases, relapse, often with abdominal symptoms, which were so severe as to completely overshadow the early throat condition. Five of the cases in the outbreak terminated fatally.

On investigation it was found that 58 of the first 64 cases were on the milk route of one of the four dairies supplying the municipality. The proprietor of this dairy was given the option of pasteurizing the milk or stopping its sale. He chose the latter course.

In order to safeguard the public from further danger of infection by the same milk supply, careful examinations of all cows and all milk handlers connected with the dairy are now under way.—Health News.

Foreign Health Workers Visit Department

The following foreign health workers who are studying health conditions and methods in this country under a grant from the International Health Board recently visited the Department:

Dr. Titu Gané, Inspector General in Transylvania and Professor of Medicine at the University of Cluj, Roumania.

Dr. Marius Kaiser, in charge of the Division of Infectious Disease Control, Central Health Service, Austria, and Director.

Dr. Wilfred A. Nicholas, formerly port health officer of Singapore, Straits Settlements. After three weeks' observation at the Department, Dr. Nicholas will take a two-year course at the Johns Hopkins School of Public Health.—Health News.

Tropical Parasites Scarce

Unexpected findings concerning animal parasites in Central American countries are reported by Dr. Maurice C. Hall, chief of the Zoological Division, Bureau of Animal Industry, who returned September 15 from a research expedition in the tropics. In representing the United States Department of Agriculture, Dr. Hall made a survey of the animal-parasite situation in Panama, Nicaragua and Salvador.

"In the countries visited—Panama, Nicaragua, Salvador and Guatemala—there are from two to six months, as a rule, and more in exceptional seasons such as this year, when there is no rain whatever. In the absence of moisture the hot tropical sun has a desiccating effect which is fatal to parasite eggs and larvae and which must have a decided sterilizing action on bacteria.

Furthermore, the rains themselves are torrential and in the mountainous countries must have a washing effect which serves to sweep worm eggs and larvae into the many water courses and out of contact with livestock. Finally, there is little overstocking on these ranges and a resulting lack of concentrated infection."—U. S. Department of Agriculture.

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